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GIFT

Gleanings in Bee Culture

VOL. XXXIX

MAY 1, 1911

NO. 9

BUCKWHEAT CAKES

The consumption of buckwheat has fallen off not less than thirty per cent in the last five years.—Daily paper.

BY MINNA IRVING

Who dares to say the buckwheat cake,
All brown and feather-light,
And dripping golden nectar, tempts
No more the appetite?
Oh! not until the sun above
Its azure vault forsakes,
Will sons and daughters of the free
Renounce their buckwheat cakes.

In twenty million homes to-day
The seas of batter rise;
The smoke of countless griddles hot
Ascend the morning skies;
And while the piled-up platters wait,
A tireless army bakes,
For hungry legions, tons and tons
Of toothsome buckwheat cakes.

Though Scotland as the land o' cakes
Is famous far and wide,
Lo! with America she must
The title now divide;
While everybody round the board
A second helping takes,
We hail our native country as
The land of buckwheat cakes.

Among the silver stars that stud
The shield of Liberty,
Columbia should introduce
The buckwheat and the bee.
Bring on the honey from the hive;
Behold! the nation wakes
From Maine to California,
And calls for buckwheat cakes.

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Order From DES MOINES

THE A. I. ROOT COMPANY Branch at Des Moines had a most auspicious start through our good fortune in taking over the old and well-established supply-business of Jos. Nysewander. Thorough acquaintance with all bee-keepers in this section and with their general requirements has placed this branch in an enviable position for giving satisfactory service. Needless to say, it is our aim to conduct all transactions at this branch in a way that will creditably reflect upon the good reputation that ROOT'S GOODS have gained among bee-keepers in Iowa and throughout the Middle West.

Let us tell you of advantages in dealing in Des Moines:

1911 Supplies and Stock

We are fully prepared to meet the demands of the coming season, which bids fair to be a big one. Our warehouse, completed last fall, gives much greater capacity for stock than we have previously enjoyed. This, with the older building, gives us the advantage of arranging our stock in such a manner that orders can be packed very quickly with no waste of time. Carlots of fresh supplies continually come from our factory to keep our stock complete.

Shipping Facilities

Des Moines is favorably known as a shipping center that has few equals. With our warehouse conveniently located and our facilities for quick and careful packing we can get goods off on the numerous steam or interurban lines in very short order. Through trunk lines, a net work of trolleys running in practically every direction—all these insure not only the saving of time but a desirable saving in freight or express charges as well. No delay in filling even the largest orders at Des Moines is our policy.

Packing

We do not charge for packing, boxing, or delivering to freight or express offices in Des Moines. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. Des Moines. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Des Moines.

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt.

No Order is Too Small or Large for Our Personal Attention.

Root Goods are Standard Goods!

Remember that ROOT'S Bee-keepers' Supplies are recognized all over the world as the STANDARD—standard in dimensions, standard in quality. Every part and place fits exactly in the place it was intended for. All parts are made with the utmost care and accuracy, and can be placed in any other hive of the same style without a hitch in fit. Our lumber is selected with a view to getting the best to be procured. It is carefully sorted and thoroughly seasoned. And no less care is taken in the choice of any material whatever that goes into a product which, when finished, is to bear the ROOT label.

The Des Moines Branch has the benefit of the experience of a manager who thoroughly understands the requirements of those engaged in this business either for profit or pleasure. He couples with his knowledge the desire to make his service valuable to you upon any occasion. Do not be afraid to make known your wants—come to Des Moines, or write and we will show you every possible consideration.

The A. I. Root Co., Des Moines, Iowa

Iowa Phone 968

Formerly Jos. Nysewander, Bee-Supplies

Gleanings in Bee Culture

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Editorial

SPRAYING TREES WHILE IN BLOOM, AND ITS EFFECT ON BEES.

FOR most northern localities where fruit is grown, spraying will be under way for fungi and injurious insects. Fortunately, our intelligent fruit-growers are not spraying while fruit-trees are in bloom; and fortunately, too, our experiment stations everywhere are advising against it, not only because the practice kills thousands of bees, but because of the injury to the delicate reproductive organs of the flowers. If any of our readers know of cases where spraying is being done while trees are in bloom, and where bees have been killed, we wish they would promptly inform us. We are gathering data going to show conclusively that spraying when the trees are in flower is very damaging to the bee-keeper. This evidence will be presented later on to State legislatures.

FIFTY-YEAR-OLD BEE-KEEPER.

IT speaks pretty well for an occupation or pursuit in life when one follows it for fifty years. In a letter just received from Geo. W. Aldred, Lapel, Ind., he mentions that it will be fifty years next month since he got his first colony of bees, and he says he has been in the business ever since. Dr. Miller is another who is in this class. The next edition of his book, "Forty Years Among the Bees," that he is now working on, will be known as "Fifty Years Among the Bees."

Here is another who has been a bee-keeper for 54 years:

This is my 54th year since I started to make acquaintance with the bees. Have manipulated the old-fashioned straw hives with a funnel-shaped piece of spruce bark for cover.

Lanesboro, Minn., March 27. JACOB WAHL.

THE FOUL-BROOD SITUATION IN BRITISH COLUMBIA,

THE following letter from our correspondent Mr. F. Dundas Todd will explain itself:

The Department of Agriculture for the province of British Columbia has appointed two foul-brood inspectors—E. Leonard Harris, Vernon, B. C., for the eastern half, F. Dundas Todd, Victoria, B. C., for the western half. The action is precautionary, not remedial, as no defined case is known to exist. One suspicious case was reported in midwinter, and will be attended to at the earliest opportunity. The aim of the Department is to learn the name of every bee-keeper in the province, and to have every

hive examined so as to insure a clean bill of health. In addition, the inspectors will give instruction in the art of bee-keeping.

F. DUNDAS TODD.

Victoria, B. C., March 27.

The unusual activity in foul-brood legislation all over the United States is going to do an immense amount of good. Great is the power of example.

BUCKWHEAT HONEY IN THE COMB NOT MUCH IN DEMAND.

MR. SEGELKEN, of the firm of Hildreth & Segelken, New York, says in the *American Bee Journal*, page 46, he notices a decided falling-off in the demand for buckwheat comb honey in sections, and therefore advises producers in the buckwheat sections to run more to extracted, for which there is a good demand. He also emphasizes the importance of shipping comb honey in carriers, and selling *early*. The whole article should be read carefully by producers.

FOUNDATION IN THE HIVE; IS THERE A RIGHT AND A WRONG WAY TO HANG IT? OR DOES IT MAKE NO DIFFERENCE HOW IT IS HUNG?

ON page 282 of this issue will be found a discussion on this question. The verdict of our own men who have made a number of tests *seems* to show that it does not make any difference. Notwithstanding that, it is undeniably true that in most cases the bees build their natural comb in such a way that there will be two parallel walls, vertical, thus:  Theoretically it would also seem that  this should give the stronger construction; but it is equally true that bees in a good many instances build their comb the other way. If any of our readers can give us more positive data we shall be glad to have them do so.

WILDER'S METHOD OF SWARM CONTROL.

WE would call particular attention to Mr. J. J. Wilder's method of swarm control, as outlined by him in our last issue, page 251. The writer did not notice it till his return from Florida and the forms had been made up, or he would have called special attention to it editorially in the same issue. Mr. Wilder is one of the most extensive honey-producers in the United States, operating in all 21 out-aparies in Florida and Georgia. A man who is so extensively engaged in the business ought to know whether his plan of bottom ventila-

tion to control swarms is a success or not. It is so simple to apply that we wonder more bee-keepers have not made use of it. Our readers will remember that we have described a scheme very similar to this in these columns, saying it worked very successfully in our locality. See GLEANINGS, page 504 for 1909, also last edition of A B C and X Y Z, under head of Entrances and Swarming.

SECTIONS WELL FILLED AND CAPPED NEXT TO THE WOOD NOT AS WELL ADAPTED TO SHIPPING AS THOSE WHERE THE CELLS ARE EMPTY NEXT TO THE WOOD.

The time was when there was an effort made to have sections with every cell of honey sealed, including those next to the wood of the section itself. While such combs look very pretty, and are classed as "extra fancy," yet experience shows that they are the very first sections to leak as a result of rough usage in shipment. The combs that stand the hardest treatment are those that are fastened on all four sides, with the cells next to the wood empty. A little racking of such sections, breaking the combs partly from the wood, will not be nearly as likely to cause leaking as a like treatment on those that have every cell sealed next to the wood. A slight breakage or cleavage from the wood when the cells are empty does no particular damage; but it makes a bad mess when the line of cleavage runs right through sealed honey—that is, when the honey and the cappings are built right up against the wood.

NO ADJECTIVE NEEDED BEFORE THE WORD "HONEY."

LETTER after letter has come in with suggestions as to a substitute for the word "extracted;" but, as we mentioned before, we doubt whether the publication of these letters would help matters to any great extent, for they are so conflicting. No less an authority than Samuel Simmins, however, agrees with the sentiment that we expressed; for, before he saw our editorial, page 85, Feb. 15, he wrote:

In Great Britain the word "extracted" is often not used at all on the label. The contents are referred to as "Pure English honey," "Pure Flower Honey," etc., while in Ireland and Scotland, as the case may be, the bee-keepers have their own distinctive applications without any intention of disingulising the fact that the honey has been extracted. The pur-chaser realizes that the product is from a pure source, and he takes it in bottles or cans for what it is, according to description, without troubling as to the method in which it was removed from the comb. In Scotland, indeed, the heather honey is not extracted in the ordinary way, and can be removed from the comb only under powerful pressure. Such honey is not labeled as "expressed honey, but simply "Pure Heather Honey," etc.

If all bee-keepers and dealers would be willing to omit the word "extracted" on the labels, but use it, of course, as it always has been used, every place else, a misapprehension in the mind of the consumer would often be prevented. The less the consumer thinks about honey compounds, honey extracts, extract honey, etc., the better.

SENDING SUSPECTED BROOD SPECIMENS TO DR. E. F. PHILLIPS RATHER THAN TO MEDINA.

As the warm weather comes on, samples of foul brood are beginning again to come in to this office for identification. In view of the fact that the Bureau of Entomology, Washington, D. C., will examine and report on all brood sent, free of charge, we ask our readers not to send any more samples to us. There are two reasons for this. We have a large investment in bees in and about Medina; and too often specimens of brood are improperly packed. As we ship bees all over the United States we feel that we have no right to have specimens of brood probably diseased come to Medina if we can help it, especially as the Bureau has a corps of experts who can give a much more accurate determination than we can.

We have in hand one sample of brood that was sent to us in a *paper* box, all broken out at the corners. Fortunately it arrived in cold and rainy weather. But no bee-keeper should send foul brood in paper boxes. Strong tin or wooden boxes should *always* be used, and then securely wrapped in heavy manilla paper to catch any drip that may leak out. The Bureau, we understand, if you will ask for it, will send a suitable box and instructions for sending. Address Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C.

THE OLD ROOT TWO-STORY CHAFF HIVE; THE NEAREST APPROACH TO THE "WORK-FOR-NOTHING-AND-BOARD-YOURSELF" PROPOSITION.

In this issue, page 271, will be seen an illustration of the old-fashioned two-story Root chaff hive. It is not manufactured any more, simply because the average bee-keeper would not be willing to pay the price for so large a hive; and because, in modern apiculture, it has been found to be more practicable to have the upper story separable from the lower one, as will be explained later. Aside from these two objections we doubt if there ever was a hive designed that wintered bees outdoors as this one would. The packing was 5 inches thick on the sides, and 4 inches on the ends. On top there was a cushion 12 inches thick that projected 4 inches on the sides and 2 inches on the ends over the brood-nest. When this cushion was carefully tucked into the upper story the bees below could stand any zero weather.

In the summer time, or during the period when honey was being gathered, the upper story would take in 15 frames, making the total capacity of the hive 25 Langstroth frames; and what jumbo colonies we could raise in those hives! And when it came to the production of extracted honey, or comb honey either—well, we doubt if there is any modern hive that will beat it. The secret of its success was due to the fact that brood-rearing would start very early in such a hive with its very thick packed walls, and to the

further fact that it could accommodate a very prolific queen. The thick chaff-packed hive-walls to the upper story protected the supers so well that, during the cold nights, the bees would never desert the sections nor the combs. They would stay right upstairs, building comb, and the next morning would be ready for the field.

We have time and time again wintered whole apiaries in these hives outdoors with a loss of less than one per cent. And one severe winter we wintered in it nearly three hundred colonies in our home yard without the loss of one. It did not merely bring the colonies through, but throughout almost the whole yard every colony would have a big force of bees.

But you say, if all of this is true, why was the hive ever abandoned? Very largely, as we have already said, because the modern bee-keeper would not pay the price. When the hive was set up and painted, all put together with the surplus equipment for comb honey, it cost an even \$5.00. (It would cost more to-day.) But it would often bring in that much cash in one season. Another very serious objection was the difficulty of getting at the brood-chamber when the upper story contained frames. This was a fatal defect.

Our correspondent, Mr. De Temple, in telling of his experience with this hive, explains that he lives 500 miles away from the apiary, and hence he is able to see his bees only a few times during the year. We doubt if there was ever a hive sold that would "work for nothing and board itself" with as little care and attention as this old hive. We are, therefore, prepared to believe every thing Mr. De Temple says of it. Those of our older readers who have been with us ever since the starting of this journal will, perhaps, remember when our Mr. A. I. Root brought out this hive. His success with it partly paved the way for the business that followed later.

Some may say that this looks like a great big booming advertisement for this hive. We do not expect to make it any more, because we do not guess, but know, the public will not pay the price for it; nor would it put up with the nuisance of getting at the brood-nest.

WHAT A. I. ROOT, THE INVENTOR AND INTRODUCER, THINKS OF THEM.

In addition to what Ernest has said above I want to add that I thought at the time, and still feel largely the same way, that the two-story chaff hive was my most valuable contribution to bee culture. While the hives are expensive and unwieldy to move about, I would recommend letting the chaff hives remain on their summer stands year in and year out. In addition to what Ernest has said about these hives, I want to suggest also that it is the best hive to prevent robbing I ever had any thing to do with. After the honey-flow is over, there are no bees hanging around the cracks in the covers and bottom-boards; and seldom or never are there any bees hanging around the entrance, be-

cause there is too big a colony inside to render such a thing safe.

In regard to the objection to having the upper frames crosswise, this can be got around by having a light upper story made to hold combs that can be lifted off all together, and put down somewhere; then one could handle the frames and brood-nest as well as in any hive. There are other advantages that have not been mentioned that will occur to any one who has worked with these hives season after season. A non-conducting double wall is oftentimes as important during a honey-flow as it is for safe wintering. The bees will store honey in combs or in sections clear up to these warm outsides, because, when closed up during a cold night, a low outside temperature does not drive the bees away from their work as it does with ordinary hives of one-inch boards or something thinner.—A. I. R.

THE EIGHT-FRAME HIVE GOING INTO A STATE OF INNOCUOUS DESUETUDE; HOW THE TEN-FRAME WIDTH IS GAINING IN POPULARITY.

AFTER interviewing our supply-manufacturing department, we learn that the demand for ten-frame hives is far outdistancing that for the eight-frame width. Ten years ago hardly any ten-frame sizes were sold. In spite of the fact that all the manufacturers have favored the eight-frame by giving it greater prominence in their catalogs the ten-frame width has been gaining in popularity. A year ago it was running neck and neck with the eight-frame, which it had just overtaken, and now the figures show that, for Medina at least, it is clear in the lead. If the present rate of gain is maintained, the eight-frame will soon be classed as among the odd sizes; or, as Grover Cleveland would say, go into a state of "innocuous desuetude;" and the only people who will continue to buy the eight-frame hive probably will be those who already have it in use, and can not afford to make a change.

For the average beginner, at least, who in taking off his surplus does not know the importance of looking after the brood-nest, the ten-frame hive is certainly to be preferred. In most localities, and especially those worked on the single-brood-nest plan, the ten-frame hives will furnish proportionately a larger force of bees, and, of course, yield a larger return in honey. Comparative tests in our yard have shown this quite plainly.

But why, if the ten-frame width was once universal, was the eight-frame ever adopted in the first place? James Heddon and others argued, 25 years ago, that the average queen would not fill more than eight frames with brood, and the journals at the time were full of articles arguing in favor of a contracted brood-nest, so that all the honey would be forced out of the brood-chamber into the sections. As contraction was all the rage it certainly looked as if it would be good policy and good economy, so far as

cost of hives was concerned, to adopt the eight-frame rather than the ten-frame hive, because an eight-frame hive would not have to be contracted like the ten-frame. At that time many of the ten-frame users who were running for comb honey were putting dummies in their hives, just wide enough to take up the space of two frames; and, naturally, many believed that it was a waste of money to make a hive two frames wider than was ever needed.

Witness the change. The last 25 years of actual experience, in localities all over the United States and Canada, have shown clearly, if they have ever shown any thing, that contraction is nicer in theory than in practice. Experience has shown that queens do not like to lay eggs next to the outside walls of the hive.

Now, please don't understand us as saying that a queen will *never* fill eight frames in an eight-frame hive; for she does it many times in some parts of the season, and perhaps she may do it as a *rule* in some localities where it never gets very cold. But in our northern localities in the spring, just when we want all the brood that the colony can care for, she is quite inclined to avoid the outside frames; and these outside frames ought to have honey and pollen in them if we expect brood-rearing to proceed properly.

We are aware that some good men will oppose this general proposition; but we ask why is it, when all the bee-supply catalogs and some bee-books have been favoring the eight-frame size, that the ten-frame has been steadily gaining patrons? and why is it to-day that nearly two-thirds of all the hives sold have ten frames rather than eight? Quoting again from Grover Cleveland, it is "not a theory but a *condition*" that confronts us. The logic of hard stubborn *facts* that are worth more than many volumes of *theory* should show the new investors what hive to buy.

LESSONS THAT CAN BE LEARNED FROM MISTAKES IN THE POULTRY BUSINESS; THE IMPORTANCE OF MAKING A BEGINNING ON A SMALL SCALE WITH EITHER BEES OR CHICKENS.

As we have mentioned before, beginners are constantly writing to us, asking our advice as to whether they could succeed if they bought out an apiary of so many colonies, etc. Time and again we have replied, cautioning such beginners against buying up a lot of bees at once. Just as much can be learned with two or three colonies as with fifteen or twenty; and the mistakes the first year, which are sure to come, will be far less costly. Later on, increase can be made as the bee-keeper learns more about the business; but it is usually a wise rule to let the bees pay their way.

The gigantic failures in the poultry business should serve as a warning to bee-keepers. This point has been mentioned before; but just at this time of the year, when many

are considering going into the bee-business, it is well to refer to it again. A man who has twenty-five chickens, too often gets the idea that his profit would be two hundred times as great if he had five hundred; and so he launches out, builds buildings, buys a lot of incubators, sets them all going at once without having had the training from any previous experience; and then, after losing all he has invested, he gives up the poultry business, claiming that it does not pay, when, in reality, it would have paid if he had increased gradually and learned as he went.

The bee-keeper is no exception to this rule. Those who build the greatest castles in the air, and who have visions of getting rich quick, usually become disgusted after a while, and give up bee-keeping with the verdict that there is no money in it. All this time the thousands of conservative men (and women too, for that matter) who had sense enough to increase only as their experience warrants, are making good and staying by the business year after year.

One reason why so many fail in the poultry business is that they spend their money for complicated and expensive buildings and pieces of apparatus in the shape of drinking-fountains, feeding-devices, trap-nests, anti-this, that, and the other, when something costing practically nothing would answer just as well. It takes a lot of eggs at fifteen cents a dozen to pay for a \$5000 poultry-plant.

A good many bee-keepers, too, are spending their time and money in getting up machines and complicated outfits for performing simple manipulations. On page 238, April 15, Mr. Louis H. Scholl describes a reel turned with a crank, for winding wire to use in wiring frames and cutting it in proper lengths. We do not wonder that Mr. Scholl was puzzled to know what it was used for. We venture to say that, if this bee-keeper had spent half the time required for making the machine in winding wire around a board of the proper length by hand, he could have had enough wire cut up the right length for twice the number of frames he was making. In all the thousands of frames that we wire, we wind the wire on the board by hand—we do not need any machine.

Just the other day we received by express a large box containing a complete outfit for use in wiring frames. There were carefully adjusted springs for holding the frame in place, a reel for the spool of wire, a friction arrangement to keep the spool from unwinding, thus snarling up the wire, and a number of other attachments that could be used. In spite of all this machinery we use nothing but our two hands and a pair of pliers when we wire frames, and we think we can do the work pretty fast too.

Before spending dollars for a machine that can be used but a few minutes a year, see if cents and *sense* can not be used to better advantage on labor in doing the work by hand.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

EDITOR DIGGES says, *Irish Bee Journal*, p. 31, that no taint will be imparted to sections if one part carbolic to ten of water be used.

THE BEES now cultivated in Missouri are almost entirely the posterity of queens introduced years ago from Portugal is a statement in *Leipzig. Bztg.*, 44.

THIS YEAR was one of the years when soft maple was not a safe guide as to taking bees out of cellar. It bloomed March 21, but the weather was so unfavorable that bees stayed in cellar 23 days longer.

EDITOR HUTCHINSON justifies his use of honey-boards by saying that he leaves the honey-board on *all summer long*.—*Review*, 117. I wasn't bright enough to think of that when I wrote that Straw, p. 88. Apologies herewith, friend Hutchinson.

TO GET POLLEN emptied out of combs, spray with diluted honey, and the bees will empty it.—*Leipzig. Bztg.*, 191. [This looks as if it might work, providing we want the pollen out of the combs. Pollen in the combs in the spring is a splendid asset.—ED.]

M. L'ABBE PINCOT, *L'Apiculteur*, 110, lodged 55 colonies on foundation with 368 cells to the square decimeter (about 23.74 cells to the square inch). Three months later, the bees born in these large cells were so much larger that they were no longer recognizable as belonging to the same colony as their elder sisters. [See answer to Straw opposite.—ED.]

J. W. ROSSMAN, p. 208, you say you're a novice and don't see the point in non-swarming after getting 2700 lbs. from 30 colonies and increasing to 70. Well, there is no point in it for you, for you probably wanted the increase. When you outgrow your novitiate and want no more increase you'll see the point. If your bees had not swarmed, instead of 90 lbs. per colony you might have had 115 or 150.

"NO COLONY ever works better than a newly hived swarm," p. 208. That's true; it does its level best, and no colony can do better. It's also true that no newly hived swarm works better than many a colony that never thinks of swarming. The latter devotes all its energy to storing, the swarm devotes its energy to overcoming the loss to the honey crop by its swarming, and it never quite makes it. [We wonder if your statement in italics is *always* true.—ED.]

A. B. MARCHANT, in spite of your protest, page 227, against printing unreliable things, GLEANINGS goes right on and prints your assertion, "Why! if I could winter two queens in one hive, and keep them in the same hive up till ten or fifteen days be-

fore [the honey-flow, I could increase my honey crop 50 per cent." GLEANINGS ought not to print that, for it ought to know that one queen can lay all the eggs a colony can take care of up till ten or fifteen days before the honey-flow in this locality, and likely in your locality. Ten queens would not increase the strength of the colony.

J. E. CRANE, p. 239, when water is poured on sugar in the way mentioned, there is no trouble from a crust of sugar left in the bottom of the feeder. Of course, it will be there if too little water is given, in which case all that is needed is to pour in more water and you can have your feeder emptied out clean and dry. But I don't value the *percolating* part. It's simply a handy way to dissolve the sugar. [While the Dr. Miller plan of making syrup is very simple and easy, much of the syrup made on that plan, it would seem to us, would be as thin as nectar. Experience shows that a *thin* syrup for winter feeding is very wasteful of bee life just at a time when it ought to be conserved. It is much more economical to feed a thick syrup than a thin one. While this statement may be out of harmony with some things we have said in years gone by, we are frank to admit that the logic of hard facts has converted us. For *stimulative* purposes in warm weather a thin syrup may be just as good or even better.—ED.]

YE EDITOR says, p. 780, Dec. 15, "Granted that you can produce larger bees in larger cells, have you gained any thing? Cheshire says if we enlarge our bees we would put them out of harmony with all the blossoms visited." Abbe Pincot quotes this, *L'Apiculteur*, 110, and says, "Can a good American admit progress that comes from Europe? However, the enlarged bees are so much in harmony with the flowers that they bring more honey than common bees. In 1908, 30 colonies of improved bees stored 330 more pounds than 31 colonies of unimproved bees of like strength in the same apiary. In 1909, 30 colonies of improved bees stored 660 pounds more than 30 common colonies of like strength. That, Mr. Root, is what I have gained by my larger bees; and whatever Cheshire's *theory, practice* here replies that enlarged bees do not cease to be in harmony with the flowers they visit." [Our friend Pincot is certainly wrong in believing that no good American will admit progress in Europe. As a matter of fact, we believe that our columns will bear out the statement that our European cousins need to take no back seat when it comes to scientific research or development in races of bees. On the other hand, we are frank to say that we are skeptical as to his ability to enlarge bees by merely making their cradles bigger. Ordinary bees vary so under different conditions it would seem to us that one might be mistaken. If it were possible to enlarge our strain of bees by merely enlarging the cells in which they are reared, some one would have discovered this fact long ago.—ED.]

Bee-keeping Among The Rockies

By WESLEY FOSTER, Boulder, Colo.

At the Colorado convention Rev. R. H. Rhodes said that he had been charged with having sown the first sweet clover in Colorado, and that, whether it was true or not, he would always defend sweet clover. As the agricultural colleges are endorsing "the weed" we may soon be hailing Rev. Mr. Rhodes as a benefactor instead of a malefactor, especially since there are hosts of bee-keepers and farmers who vehemently declare that sweet clover is not a weed.

CROP PROSPECTS FOR 1911.

The snowfall on the mountain ranges in Colorado has been heavier than for ten years past. On the Front Range, which extends from Pike's Peak to the Wyoming line, the snowfall has been about thirty feet. Last winter it was only six feet. The farmers are feeling hopeful, though the damage from grasshoppers is yet hard to conjecture. They have already hatched out in large numbers, and at this writing, April 10, some of them are an inch long; but we shall probably have snow and rain that will destroy most of these, so the more that come out now the better.

NATURE AND BEES.

I sometimes think that every bee-man is a queer genius, if not a little bit off in the upper story. The bee-man is always a mystery to his neighbors, receiving stings that do not pain him at all, but which would kill anybody else. Then he knows all the mysteries of the hive, an unknown world to the uninitiated. What queer ideas we have of things we do not understand! In wandering over the fields to find the source of the pollen and honey the bees bring in, one sees many wild bees, hornets, wasps, etc., that are after the same foods that the bees collect. If he makes a study of insect life, a fairly clear chain of the voluntary process may be discerned, the wild bees living solitary lives, but social to the extent that their burrows are close together. Wild bees, as a rule, do not visit every flower that has nectar and pollen, as the honey-bee does, but a certain species will confine its efforts to just one flower. The promiscuous work of the honey-bee has made its existence over the whole earth possible. The honey-bee seems to be the only one that secretes wax and builds comb therefrom. Some flies resemble bees very closely; but these may be distinguished by the number of wings, as they have only two.

One can not know too much about the brothers, cousins, and second cousins of the honey-bee. The physiology of the bee egg, as told on pages 72, 73, Feb. 1, by Dr. Bruenich, and the psychology of the bee in "The Life of the Bee," by Maeterlinck, are well worth further study. The nature of the lit-

tle subjects is a never failing source of interest to the true bee-keeper; but, after all, isn't it just a little bit queer to be interested in bees, bugs, and flowers?

CONCERNING COÖPERATION.

Mrs. Acklin, page 164, March 15, asks why it is more difficult to secure coöperation among bee-keepers than among those in other industries. The reason is that bee-keepers, particularly those who specialize, are nearly all widely separated, and no association can do aggressive work where the members are isolated from each other. In districts where bee-keepers are not great distances apart, coöperation is and has been a success; but they, the same as other producers, have not worked out a coöperative business organization such as the trusts have perfected. The success achieved by the orange-growers would never have been accomplished without a close association. If the orange-growers were spread all over the country, as the apple-growers are, there would be no orange-growers' association. My only hope for a national association founded on business lines is the joining together of local associations of producers that in the future will make the marketing of honey and the buying of supplies a success.

First we must demonstrate our ability to get together locally, and market successfully, before we can make a go of the larger association. Colorado bee-keepers for ten years have proven the value of coöperation. If each State would organize in this way, it would be an excellent preparation for the larger association talked about. The State associations of bee-keepers and the National association are all thinking and working to some extent in the line of business coöperation; and a few questions that will have to be answered in the affirmative may not be out of place if this question of coöperation is ever any thing more than talk. Do I believe that there are business brains and honesty enough among bee-keepers to make a national coöperative association a success? Do I know of a man with the knowledge, ability, and judgment to manage such a business and safely get the craft afloat? Could seven directors (of sufficiently good judgment) be found who would serve without pay? Am I willing to put in 25 cts. for stock for every hive of bees that I possess? Am I willing to sell my honey through the association on commission, say 10 per cent? Am I willing to grade my honey according to the rules adopted by the association, and trust the manager's judgment when he tells me that it will have to be regraded in the association's warehouse at a cost to me of 5 cts. per case? Do I have the fullest confidence in the honesty of purpose and management of the association? and am I an enthusiastic believer in the idea of coöperation? These questions answered in the affirmative will give a fair reply for a prospective candidate for membership in an association. Do we really mean any thing, or are we just talking?

Bee-keeping in Southern California

BY MRS. H. G. ACKLIN, GLEN DORA, CAL.

Winter losses have been heavy in some sections of our State. Lack of stores is probably the first cause, while the cool cloudy weather was responsible for the loss of many weak colonies.



Mr. Frank Hanson, California correspondent for German and French bee journals, writes me that, in his opinion, California bees are thinner-blooded than those reared in a more rigorous climate (just as people are), and that bee-keepers from the East do injury to their bees the first winter or two by not keeping them warm enough. Considering our winter just merely another summer, they are so warm themselves that they never think of partly closing the entrances to the hives.



Some months ago I mentioned an uncapping-device on which Mr. C. H. Clayton, of Los Angeles, was working. The other day I called again to see how he was getting along with it, and found that the old one had been discarded as impracticable, and another of an entirely different pattern was being perfected. The machine seemed to me almost perfect; but the inventors are not satisfied yet, and are having others made with added improvements. It is a capping-melter and uncapping-machine combined, and is to be used over a small stove. The bottom is arranged for water, the steam from which affords heat. Pieces of heavy metal, scalloped and very sharp, run the entire length on either side; and by touching levers at the upper corners the comb is shot down between those knives and uncapped in the twinkling of an eye. Probably five combs could be uncapped with this device while one could be done by hand. The upper part is made to open a little wider so as to include Hoffman and other self-spaced frames. It is compact and strong, and takes very little room. The wax and honey run off at the lower end. The scalloped knives need only to be sharpened. I wish I could give a better description of this machine; but one almost needs to see it before all its good points can be appreciated. Mr. Clayton expects to put out several, to be tested during the orange-flow this spring.



I am fully persuaded that a more intensive method of bee-keeping would pay here as well as in other States. Anything which is done in a haphazard way never wins. I often hear of neglected apiaries, of combs thrown out in which there is foul brood, etc. Now, friends, you would never expect to

succeed in any other business by such careless methods, neither can you in the bee business. Let us take better care of our bees. Unite enough weak colonies to make a strong one, for a weak colony is no good anywhere. See that there are queens and stores, and keep them warm so that brood-rearing will not be checked. Clean up the yards and tidy up the honey-house just as though you were expecting company. Then you will see how much more pleasant it is to work there, and will soon become more interested in the bees. The natural scenery in most apiaries is so magnificent that one can hardly blame the bee-keeper for not beautifying his grounds, as he has only to lift his eyes to behold the utmost grandeur; but that can not take the place of a neat tidy yard. The extra care given our bees will come back to us in added tons of honey. Deliberately letting bees starve should be made an offense the same as cruelty to large animals. Think of our being in a comfortable house with plenty to eat, and the little workers, some of which helped bring in last season's crop, starving in their hives, through no fault of their own.



In his paper at the State convention Mr. W. H. Allen gave some good suggestions about starting in the bee business without much expense. One was, to make a box quite tight except where the bees are expected to enter, and put it in a deciduous fruit-tree where a runaway swarm will be sure to find it. Several of those boxes can be used, and many swarms caught during the season. Another paper, by L. L. Andrews, pointed out the way to locate an apiary where there are no conveniences, if one can imagine an apiary in such a place. These two should have been companion papers, as the instructions given, if followed, would enable almost anybody with an average amount of intelligence, strength, and energy to go into the bee business.

CUPID STUNG.

BY H. CARY.

Cupid once upon a bed
Of roses laid his weary head:
Luckless urchin, not to see
Within the leaves a slumbering bee.

The bee awoke with anger wild,
The bee awoke and stung the child.
Loud and piteous are his cries;
To Venus quick he runs, he flies.

"O mother! I am wounded through;
I die in pain, in sooth I do!
Stung by some angry little thing,
Some serpent on a tiny wing.
A bee it was, for once I know
I heard a rustic call it so."

Thus he spake, and she the while
Heard him with a soothing smile;
Then said, "My infant, if so much
Thou feel the little wild bee's touch,
How must the heart, ah Cupid! be—
The hapless heart that's stung by thee?"

Notes from Canada

By J. L. BYER, Mt. Joy, Ont.

"The best way to avoid spring dwindling is to insure good wintering. Bees that winter well are not likely to dwindle in the spring very much," page 92. Doolittle never wrote any thing more sound than that, and it will pay every beginner to paste in his hat that statement of Mr. D. Perhaps some of the older members of the craft might profit by doing likewise.

Mr. Doolittle still claims, p. 200, April 1, that age does not injuriously affect super foundation for sections; and while I do not produce enough comb honey to be able to give an intelligent opinion, still I do know of a lot of comb-honey producers who could not easily be persuaded that Mr. Doolittle is right in his view. Not the least among the number would be Mr. House, of Camillus, N. Y.

C. P. Dadant says on page 135, when referring to Canadian bee-keeping, that "their bees begin to eat of the stores in the center earlier than ours, for they have fewer warm days in the fall." My experience is that, the more warm days we have at that season, the heavier the consumption of stores. With the weather cool enough to keep the bees quietly clustered when they are without any brood, the consumption of stores is very light indeed, and the more they are aroused by warm weather the more honey they will eat.

Page 86, Feb. 15, mention is made of winter-killing of clover. In our section the term "winter-killing" is a misnomer, as only once do I recollect that the clover was damaged in winter. While I refer to alsike, the same will apply to a great extent to both red and white clover. Practically all the damage to clover here in Ontario is done after March 15, sometimes not till after Apr. 1. Warm days causing the ground to thaw out to the depth of three or four inches, followed by freezing at night, fix the clover. It will be literally lifted out by the roots, and many a time have I seen whole fields ruined in this way. The common red clover is much more susceptible to this than is alsike, owing to the latter having more lateral roots. Red clover, having a longer tap root, is more easily lifted out of the ground. I have seen plants of red clover raised so high as to measure eight inches between the ground and the top of the root. Some land is more susceptible than others; but underdraining improves any kind of soil so far as this is concerned.

Regarding inspection for foul brood, as touched upon by Wesley Foster, page 199, April 1, I would say that, while it is impossible to tear open a hive on a cold day, yet

if there is any American foul brood present in the colony a very simple test will decide the matter. If the top of the hive is sealed so that little if any ventilation passes upward, the least trace of foul brood can be detected at the hive entrance by anybody who is acquainted with the characteristic odor of the disease. After the supers are on the hives, the odor in slightly affected colonies is not as noticeable; but in the early spring, when the bees are getting a little honey from willows and other bloom, I have frequently spotted colonies which, on examination, showed only about a dozen diseased cells.

While the list of inspectors has not been made public as yet, April 7, from what I have learned the majority of those who acted last year will again be "on the job;" but at least one has refused to serve again this year because he could not give the work proper attention without neglecting his own interests too much. In the next issue I hope to be able to give the list of inspectors for 1911, with territory assigned to each.

I am glad to note what J. T. Dunn has to say on page 203, April 1, about Carniolans being able to resist the attacks of European foul brood. Mr. Benton, of California, also agrees with him on the subject, and has so expressed himself in a recent issue of the *Bee-keepers' Review*. I hope they are right, for I really like the Carniolans better than any other bees. What Mr. Dunn says about their keeping the hives populous all the time was brought forcibly to my mind yesterday while looking over the Cashel apiary to see if all had stores. The day was cool, and no bees were flying. All I did was to turn back the packing behind the frames, and then lift up the quilt. If sealed stores were in evidence, no further examination was necessary.

The bees seemingly have wintered well in the yard in question, as every colony was alive, and only two were found short of stores. No smoke was necessary in examining Italian colonies, as the bees were all clustered near the front of the hives. As a rule, they reached across the hive and about half way back. When Carniolan colonies were examined, what a different story! Bees were crammed into the furthest corners of the hives; and as they were a bit stupid from the cool weather, it took a lot of smoke to drive them down so that I could see whether there were any stores. It is only fair to say that the Italians have the most honey on hand, for, aside from the well-known tendency of this race to pack more honey in the brood-nests during the buckwheat flow than do the Carniolans, they have not nearly as many bees to winter as do the latter race. This fact accounts, no doubt, for the extraordinary wintering qualities of the Carniolans, for, given an abundance of good stores in the fall, it matters not how cold the winters are—they always come out in the spring boiling over with bees.

Conversations with Doolittle

At Borodino

EARLY DRONES.

"I wish to rear some early queens before the drones of black and hybrid bees kept by my neighbors begin to fly. How can I secure drones early from my best drone mothers, for my queens?"

I doubt the wisdom of trying to rear queens before there are any flowers in bloom or before the colonies are strong enough or the hives fairly well filled with bees and brood; and by that time some of your neighbors' colonies are likely to have drones also. Queens reared out of season are generally of poor value—so much so that it is better to sacrifice the purity rather than have queens of inferior quality. As a general rule I would advise waiting for strong colonies before commencing.

Where one wishes to rear reasonably good queens just as soon as such work can possibly be done I have found the following method as good as any: In the fall, select the queen or queens you wish for your drone-breeder, and give to her or to their colonies the bees from some weaker ones early in October, having killed the queens of these weaker colonies about a week before uniting. See that there are two drone combs in the center of the brood-chamber of these united colonies, with two combs of worker-cells between them, and that stores enough have been provided to last until the following May.

As soon as it is out of its winter quarters, the colony should be made as warm as possible, and should be given a teacupful of warmed syrup in a feeder each evening. For this purpose a division-board feeder is preferable, as this can be brought right up to the cluster, and the syrup will warm the bees and enable them to take the feed, even if the weather should be quite cool. If you can take a few bees at this time from some strong colony, keep them in a comfortable room for two days, and then unite them with your drone colony just at night by letting them run out of the confining-box into the hive through a little hole in the covering on top. These bees will cause the queen to be fed for drone eggs much sooner than otherwise, thus favoring the early depositing of eggs in the drone-cells.

When you notice capped drone brood in this colony, it is time to begin to rear queens. Feed the drone colony during every cold or rainy spell, and at all times when the bees can not secure any thing from the fields; otherwise the drones may be killed or your drone brood dragged out, for all colonies having good queens seem to realize that drones are not needed so early in the season.

As soon as the drone part seems to be a

success, select the strongest colony, one which should have its hive well filled with bees and brood, and look over the frames until you find the queen. Set the frame having her on one side while you fit in a sheet of queen-excluding metal near the center of the hive, this sheet fitting so closely that it will be impossible for the queen to get around it, or she may get in with the cells and destroy them. Put that part having the younger brood on one side and the older brood on the other, taking care that the frame with the queen is near the older brood. Twenty-four hours later, take out a frame from the side opposite the queen; shake the bees off, and give it to some other colony if it has brood in it, allowing one frame of brood to come between the excluder and the empty space made by taking out this frame. Next prepare a stick of cell-cups from your best breeder for queens and place it in the space referred to, and the bees will go on and perfect the cells just the same as if an upper story were used later on, with an excluder between it and the broodnest below, as is the usual custom. If there is an abundance of bees to cover the entire length of this stick of cell-cups, you should get from twelve to eighteen perfected cells from the twenty cups given; but if ten are perfected you will have no reason to complain.

As soon as the queen-cells are ripe, nuclei should be prepared to receive them, or, any colonies with poor queens which were not superseded last fall could be used to advantage by killing the queens three or four days before the inmates from the cells emerge. If you use only very small larvae, or those not more than twenty-four hours old, for grafting the cells they will become ripe in eleven days, or in ten days where those from thirty-six to forty-eight hours old are used. By a little close watching of a larva for the first forty-eight hours after the egg hatches you will soon be able to tell its age by glancing into the cells. If there are not enough colonies in the apiary having poor queens to take all of the ripe cells, it is better to divide a colony or two into nuclei rather than keep them without a good laying queen at this time of the year when the eggs that are being deposited are needed to render the colonies prosperous for the clover harvest of honey.

Then, too, colonies used for protecting virgin queens at this time of the year, from the time the ripe cells are given until the young queens begin laying—which should be about fifteen days—are very much impaired for good results in the harvest. The queen emerges from the ripe cells in from five to fifteen hours after the cell is given to the colony; then it will be from seven to nine days before she goes out to meet the drone, and from two to three days more before she begins laying. During these twelve or fifteen days a good queen, if undisturbed, would lay eggs enough to make all the difference between a good crop of honey and a poor one.

General Correspondence

PRODUCING HONEY ON A LARGE SCALE.

Modification of Methods Needed.

BY W. P. SOUTHWORTH.

Manager Western Honey-producers' Association.

It was with pleasure that I read Mr. Greiner's article, page 133, March 1, as it contains many good things and gives a very clear idea of how he works with his bees; but I am sorry to note that he thinks that my former articles on extracted-honey production are in any way making light of his method, or of that of other bee-keepers, provided the results are satisfactory.

What I have said in regard to producing extracted honey, and the importance of allowing it to ripen in the hive, applies more particularly to the extensive honey-producer; for it is he that gives directions to his helpers in a general way, and they proceed to extract every thing that comes into the honey-house, regardless of whether it is ripe or not. The person who can afford to put in his time with fifty colonies or less, surely could have no excuse for extracting green honey.

When Mr. Greiner extends his honey-production so that he has as many apiaries as he now has colonies, and computes his crop by tons, he will have to employ some help and use different methods. No doubt he will find engine-oil cheaper and more effective than elbow-grease to turn the extractor, and the removing of full supers of fully capped combs more economical than taking off four frames that are two-thirds finished, and replacing them with empty ones; and he will not imagine that the Western honey-producers use the half-depth frames, but he will understand that the full-depth Langstroth frame is the one for business all around. The bees enter them more quickly, and store more honey in them, and the average wielder of the uncapping-knife will slash them down even with the wood faster than twice the number of shallow ones can be handled. Many are claiming that honey stored in virgin comb is better than that stored in old combs. My belief in that theory is my reason for uncapping deep; and, in addition to good honey, more wax is secured.

It is true that we must all work in our own harness, and handle our bees and harvest our crop as our individual equipment and locality demand; and those who have read my former articles carefully will note that I have made due allowance for the use of the method best adapted to the locality; but I do not want to be misunderstood in this one point — that honey must ripen in the hive to be at its best. For better authority on this subject, send to E. F. Phillips, Department of Agriculture, Apiary Depart-

ment, Washington, D. C., and get his bulletin on the production and care of extracted honey.

No doubt Mr. Greiner will think I am making light of his methods again, if I should say that extracted honey is not ready for table use when put up right from the extractor or strainer-tank, but that it should be put through a process of clarifying that removes the pollen grains and ferment germs. The latter are taken up from the air in the process of extracting, and should be removed before the honey is fit for consumption.

Western honey-producers may be in advance of the times, as most bee-keepers think their fresh extracted honey perfect; but taking into consideration that our little business has grown in four years from an output of 40,000 to 250,000 lbs. per year, and consumers are calling for more of that fine honey, saying that it is the best they ever had, there must be something in this refining process.

All the honey we put out goes through this clarifying and refining process. Extensive honey-producers are recognizing the importance of this work, and are sending their honey to us to be prepared for market instead of putting in the expensive equipment that is required.

One bee-keeper says, "I am sending you my honey and buying it back from our grocer, because it is better after you have treated it, and it is free from that peculiar substance that I am not prepared to take out of it."

In another article I will take up this subject of preparing extracted honey for market. Salix, Iowa.

TOBACCO HONEY IN CONNECTICUT.

Something Concerning the Possibilities of the Tobacco-plant as a Source of Nectar.

BY E. H. SHATTUCK.

Connecticut, strictly speaking, is not a honey-producing State, not over 50 colonies being profitable in one location, and 20 to 25 being much more productive. The farmers depend mostly upon tobacco, and thousands of acres are raised in Hartford County within reach of any apiary.

Tobacco in this section has always been raised in the open field; and when about four feet tall each plant has been "topped," and not allowed to "go to seed." The "suckers" have been picked off up to the time the crop is cut, between the middle of August and September 1.

The past season has noted a change in the methods of harvesting the tobacco crop. It is now being "picked" in the field instead of being cut by the old method. The plant is allowed to grow from seven to ten feet high, and it goes to seed. The leaves are saved by "picking," this work commencing at the bottom, one row of leaves being gathered at a time, and the top leaves

picked last. The plants are thus allowed to blossom, each one bearing hundreds of individual flowers, and they continue to bloom from August 1 until frost, which usually occurs some time in September, perhaps not until October. Thus we have thrown open to our bees hundreds of acres of tobacco, containing myriads of flowers. The bees swarm on it, some days more than others, and the honey comes in as fast as during some of the earlier flows.

This year it is reported that much tobacco will be raised under cloth, or "shade grown," in this vicinity, and the towns adjoining, Simsbury and Bloomfield. Probably 3000 acres will be raised. Whether the bees will find easy ingress to these fields remains to be seen. The flowers will be allowed to bloom, and doubtless the bees will find plenty of places in the cloth where they can get to and from the source of nectar.

"Tobacco honey?" did I hear some one say? It's fine, and I am going to mail GLEANINGS a sample within a short time and let the "editor" pass upon it.

Granby, Conn., March 18.

[Mr. Shattuck has promised to send some photographs illustrating certain phases of the industry in his part of the country, and we understand that "tobacco honey" will be treated more at length a little later.—ED.]

ARTIFICIAL SELECTION AND THE HONEY-BEE.

BY G. W. BULLAMORE.

In discussing the possibility of producing, by selection, a non-swarming strain of bees the distinction between natural selection and artificial selection is not always observed. Natural selection is "the survival of the fittest," or the preservation of those individuals that are most advantageously equipped in the struggle for life. It concerns itself solely with those characteristics that are advantageous to the individual and to the race. When man removes a plant or an animal from its natural environment, and proceeds to improve it by artificial selection, the struggle for life is far less keen. The bodily wants of the animal are attended to by the breeder, and selection ceases to occupy itself with details which are advantageous only when there is a fight for subsistence. The art of the breeder perpetuates strains which would be hopelessly outclassed in a state of nature.

The sitting tendency in hens has been compared with the swarming instinct in bees, and it is interesting to consider the difference in the treatment of domesticated fowls and of domesticated bees in the past. Among the thrifty inhabitants of the countries surrounding the Mediterranean Sea a desire on the part of a hen to "keep the race from dying out" after she had laid a few eggs was often rewarded with a broken neck. The hen that continued laying was the favorite, and escaped the cooking-pot

for the longest period. This would inevitably lead to a modification of the incubating instinct, and the non-sitting Leghorns, Spanish, and their sub-breeds have resulted.

But when we turn to the bees, how different is the tale! We find that, under the sulphuring system, the heaviest skeps were condemned because of the quantity of honey they contained, and the lightest skeps, because the bees would not live through the winter. Now, if a primitive bee-keeper possessed stocks of about equal strength and of different swarming tendencies, the stocks that did not swarm would always be among the heaviest, and would be taken to the sulphur-pit. If this has been done regularly for hundreds of years (and there is little doubt that the ancient method systematically exterminated the stock that failed to swarm), we can not wonder that a non-swarming bee now requires a lot of finding.

As I understand the matter, swarming is brought about by the reaction of the bees to certain sets of conditions. To control swarming, we modify the conditions. If we wish for non-swarming bees we must modify the reaction to the conditions. I do not know exactly *why* bees decide to swarm; but an old English writer (Nutt) attributed it entirely to temperature. There may be some objections to this view; but if we look upon it as proven, then ventilation and supering restrain swarming by lowering the temperature. The non-swarming bee, however, will experience the critical temperature without commencing queen-cells or manifesting any desire to send off a colony.

Under present conditions such a colony would be heavily handicapped. Unless it got into the hands of a scientific queen-rearer who was interested in the subject, it might remain one colony as long as the world endures, provided it did not die out altogether from improper wintering, disease, leaky roof, or some such calamity. The swarming colonies also suffer from these mishaps, but some win through and perpetuate the race of swarmers.

In England at the present time much of the increase is obtained by natural swarming. Where artificial swarming is practiced, and a queen-cell is given from a swarmed stock, the product is really a "cast" so far as heredity is concerned. If artificial queen-rearing from the strain with the best honey record ever becomes general, the swarming instinct must necessarily undergo considerable modification. Heavy supers are not yielded by the swarming hives; and in working for the improvement of the bee I am inclined to think that the comparison of supers is the best that will always yield the most satisfactory results. Systematic re-queening from the best hives will correct all our errors as to color, tongue-length, etc., if continued for a long enough period.

If the red-clover bee ever arrives, it will be heard of in a red-clover district where the disparity in the weights of supers will betray its presence. Although it is possible to measure the tongue-length of bees, I have

not much faith in this measurement as an index of the bee's powers. The tongue of the bee is a complex piece of mechanism; and to increase the length of one part without troubling about the other parts might lead to a lessening of its usefulness in some directions.

Although the honey-bee is not adapted to red clover, observations in Europe show that it visits twice as many species of flowers as the bumble-bees that are adapted to it. This leads me to suspect that the present tongue-length is the most useful for general purposes, and enables its owner to compete with both short-tongued and long-tongued bees in the gathering of nectar. To adapt the clover to the bee by raising a variety with shortened florets would be far better. We should know that we were adding to the sources of nectar, while the adaptation of the bee to other flowers would remain unchanged.

In attempting to raise improved strains of bees, the inability to control male parentage is certainly a difficulty; but that it is not an insuperable obstacle is shown by the success of breeders for color. The truth is, if the mating is limited to a certain district, a "sport" will often impress its characteristics on the whole of that district. The Manx cats, mentioned by W. E. Flower, p. 787, Dec. 15, 1910, are an illustration of this. They are a variety formerly confined to the Isle of Man, and probably originated in a "sport." The breed is said to have disappeared in recent times, owing to the introduction of tailed cats.

Another well-known instance is that of a village in France where intermarriage was the rule, and where all the inhabitants possessed twenty-four fingers and toes. There can be little doubt that this was originally the peculiarity of one individual. With such examples in mind, I feel that I must follow Dr. Miller and subscribe to the view that one never can tell what the future has in store.

Albury, Herts, England.

TWO METHODS OF SWARM PREVENTION.

A Modified Shake-Swarm and Heddon Plan Compared.

BY DR. C. C. MILLER.

A correspondent from the good old Keystone State writes:

"A farmer within a mile of me works his bees in this way: While the swarm is in the air he replaces four frames of brood with four frames of foundation; cuts out all queen-cells left in the hive and returns the swarm, using the removed frames of brood to strengthen other colonies. He uses eight-frame hives. He seldom has another swarm from that colony. Last year he got twice as much surplus as I did, but I had fifteen increase and he had only four.

"The plan I have used is to hive the swarm on empty comb or foundation, set it

on the old stand, and give it the supers from the parent colony. I set the old hive beside the new, with entrance to the rear, and gradually bring it around till, on the 6th day, the entrances face the same way, and then in the middle of the day I remove the old colony to a new location.

"Will I do well to change to the plan of my neighbor? Are there objections to it? and if not, why not remove the brood before the bees swarm, and thus save trouble? Or is there a still better way?"

Your neighbor practices a variation of shake-swarming, and yours is a variation of the Heddon plan. Your plan may be improved considerably. So may his.

First, as to his plan. Although he says he very seldom has another swarm from a colony thus treated, I'm afraid that, in a bad year for swarming, you would find that too often the colony would swarm again in a few days, because left still too strong—at least too strong in brood. Sometimes taking away two frames of brood will make a colony give up the notion of swarming, but oftener it will have no effect. The usual way is to take away all brood just before danger of swarming, as you suggest. Sometimes, however, when left thus bare the bees swarm out, and so it is well to leave one frame containing the least amount of brood. Thus treated, there ought to be no more danger of swarming than if the bees had swarmed naturally.

Second, as to your plan. Instead of reversing the old hive and then moving it partly around each day, set it beside the swarm, facing the same way, and let it stand there for seven or eight days, and then move it to a new location. That, you will see, is a good bit less work. Leaving the hive a day or two longer will throw a bigger lot of bees into the swarm when the old hive is moved to a new stand, for all the bees that have become field bees up to the time of removal will join the swarm, and that includes all that would join the swarm by your plan, and, in addition, the output of the one or two days additional.

You will like either plan better, probably, if you will make the changes suggested, and it is not certain which you will like better. The amount of honey harvested should not differ much. You might try some each way.

Perhaps there is no plan to suit you better, unless you are working for extracted honey, in which case you might prefer the Demaree plan. Just before there is danger of swarming, raise into the second story all the brood except one frame, leaving in the lower story that one frame containing the least brood, and fill up each story with empty combs or frames filled with foundation, having a queen-excluder between the two stories, making sure to leave the queen in the lower story. A week later it may be necessary to destroy cells in the upper story. As the brood hatches out in that story, the combs, of course, will be filled with honey, making them extracting-combs.

Marengo, Ill.



OLD-STYLE TWO-STORY-CHAFF-HIVE APIARY, THE OWNER OF WHICH LIVES 500 MILES AWAY.

THE OLD TWO-STORY CHAFF HIVES GOOD FOR WINTERING.

BY F. W. DE TEMPLE.

For the past ten years I have been a traveling salesman. My residence is 500 miles from my apiary, which is located 25 miles east of Buffalo, N. Y. I have found that this long-distance bee-keeping can better be done with the old-style two-story chaff hive than with any other style I could use, as, under the circumstances, outdoor wintering is necessary; and where but few visits are made during the year, the two-story hive answers my purpose best, although I know there are other hives more convenient for the ordinary bee-keeper.

Last season I practiced the Doolittle plan, working for comb honey; and while this style of hive necessitated much extra handling of frames, etc., I secured a crop of nearly 3000 pounds of comb honey from 45 colonies, and controlled swarming to two natural swarms, and from several of the colonies took as high as 126 pounds of salable honey each.

The photo was taken in August, on a very hot afternoon, during a dearth of honey, which accounts for the clustering of the bees on the outside of the hives. I built most of those hives myself, and enlarged the entrance to $\frac{3}{8} \times 10$ inches, the old-style entrance being $\frac{3}{8} \times 8$ inches—too small for summer ventilation. As fall approaches I have a plug that is inserted, which was fit-

ted when the hives were built, which reduces the entrance to $\frac{3}{8} \times 6$ inches, and when visiting the apiary about Nov. 1, as I usually do, I reduce the entrance to $\frac{3}{8} \times 4$ or $\frac{3}{8} \times 2$, according to the size of the colony. I find that the larger entrance, $\frac{3}{8} \times 10$, has the advantage of preventing dead bees from clogging the entrance in winter; for while the front or outside entrance is reduced to small dimensions, the space at the inside remains $\frac{3}{8} \times 10$ inches, and there is little danger of dead bees piling up over such a space. There is great danger of their doing so over a $\frac{3}{8} \times 8$ -inch entrance. As the bees always cluster immediately over the entrance in forming their winter nest, and the old bees usually die early in the winter, the danger of clogged entrance is great, especially when cold winter weather sets in early, as it did last fall, about Nov. 1. The larger entrance also retards swarming to a great extent.

My winter losses are usually not over five per cent; but the winter of 1909 was an exceptionally severe one, and the combs contained much honey-dew, so that the loss was about twenty per cent—the heaviest I have had for years. I use absorbents over the frames for winter packing. On the frames I put heavy Brussels carpeting, cut to fit the hives 16×20 inches, and over this a sack of forest leaves. The bees are always dry and warm.

The old Root chaff hive has answered my purpose well; and, although rather clumsy and unhandy at times, I shall use them un-



H. N. SIMMONS' APIARY IN THE YUMA VALLEY, ARIZONA.

til I can devote more time to my bees, when I may possibly adopt a more modern hive and cellar wintering.

Darien Center, N. Y.

BEE-KEEPING IN THE IRRIGATED LANDS OF THE WEST.

How Good Bee Locations are Opening up to the Prospective Bee-keeper.

BY C. J. BLANCHARD,
Statistician of the Reclamation Service at Washington, D. C.

Among the numerous specialized industries which are taking root, and which promise a large measure of success on many of the irrigation projects of the Reclamation Service, is the production of honey.

During a recent trip covering nearly all of the reclamation projects, the writer made an investigation of this industry. On a large number of the projects the apiaries were only just being established. Those which had been in operation a year or more, almost without exception, reported an abundance of food for bees, favorable climatic conditions, and a very fine grade of honey for which there was a good demand. The white-sage honey was an especial favorite on the coast.

As the cultivated acreage increases on the projects, adding large areas of alfalfa and

clover, orchards, and small fruits, the food supply will take care of more bees. Development of agriculture of course promotes the growth of towns and villages, and creates a home market. In most sections the supply has not kept up with the demand. By cooperation among apiarists to produce best grades and to create new markets through intelligent advertising, bee culture will doubtless become one of the most profitable industries in the desert country. As every thing in the arid country is tending toward specialization, the bee-men must get together on a plan similar to that now in operation among the fruit-growers, establish high standards, and by rigid regulation insure the marketing under special label of only first-class honey.

There is a wide field for the bee-man in the West, and nearly all of the projects of the Government offer opportunities which are worthy of consideration.

Washington, D. C.

UNCAPPING FOR A POWER-DRIVEN OUTFIT

BY O. B. METCALFE.

With the old uncapping-knife, heated in boiling water, it took two good men to uncapping for a fast man at an eight-frame power-driven automatic extractor; and if the honey were all capped clear to the bottom, and not very thick, they could not always keep

up. With the steam-heated knife in good working condition I think two men can uncaps honey, either partly or entirely capped, for any man at an eight-frame extractor; but the boiler for generating the steam must be so arranged as to take advantage of all the heat a good one-burner gasoline-stove will generate going full blast; and even then the uncapper will have to wait a bit on his knife. In other words, two men shoving the knives through big fat combs of solid honey will cool them down until they can not be jerked right through without tearing the cells. The little boiler with

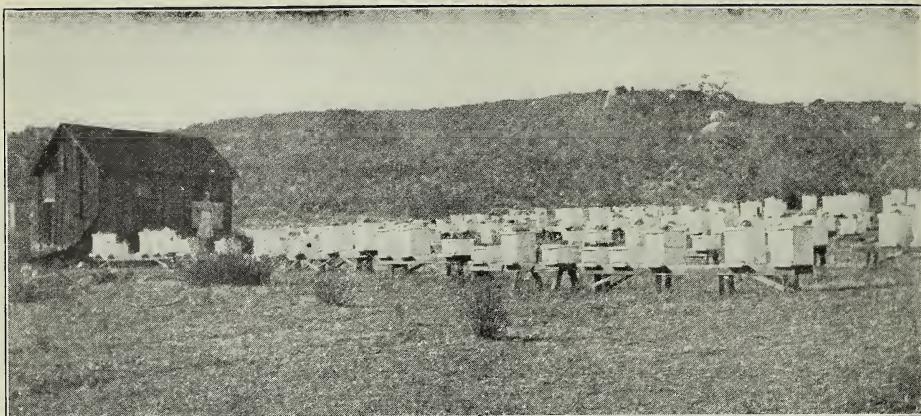
flues in it, which I described in a previous article in this journal, does very well, but would do better if it generated twice the steam. Perhaps if this were the case one fast man could uncaps for the man at the extractor. This would save a third of the labor in the extracting house. Summarizing these general remarks about the steam-heated uncapping-knife, I will say that, if one is to have an extracting-outfit, up to date in every respect, he must have steam-heated uncapping-knives.

Right here I want to have my little say about that question of hot or cold uncaps-



O. B. METCALFE'S WAY OF UNCAPPING WITH THE STEAM HEATED KNIFE.

Instead of resting the end-bar of the frame on a nail-point, the projection of the top-bar is set into a one-inch hole in the cross-piece of the uncapping-can.



ONE OF E. M. GIBSON'S APIARIES IN CALIFORNIA IN WHICH THE HIVES STAND ON BENCHES.

ping-knives. It is certainly a question of locality; and if any cold-knife advocate does not believe it, let him come down here and put one of his sharp cold knives into one of our well-ripened combs of alfalfa honey; and when he gets it pulled out by sitting back on it good and hard, and then goes over and looks in the extractor and sees honey hanging to the sides of the extractor in ropes of silvery silken-looking threads that merge together only very slowly into a solid mass, and then go rolling down the sides of the extractor in great balls, catching the baskets here and there, he will never go home and write an article on the use of a cold knife, for New Mexico bee-keepers at least. This fall, when we were doing our last extracting, I sat down by the gate of the extractor and touched the honey as it crept out, and it was so thick that it did not stick to my finger at all. How would you like to uncaps that sort of honey with a "sharp" cold knife? So in regard to the steam-heated uncapping-knife. I say they are a "go." If you have thick honey, get them. They deliver the frames to the man at the extractor, and they deliver them in better shape.

Fig. 1. of this series shows my partner, H. L. Parks, picking up a comb to uncaps. In Fig. II. he is seen using the uncapping-knife to assist his left hand in placing the comb with the end of the top-bar in a one-inch hole in the cross-piece which extends across the uncapping-can. There is a similar hole in the other end for the other uncapper when two are at work. This little trick of using the knife to assist the left hand in placing the comb quickly without putting down the uncapping-knife. In Fig. III. he is seen uncapping one side of the comb, and in Fig. IV. he has swung the comb around so as to get at the other side. The way we jerk combs around and jab them down when we get in a rush would split end-bars

all to pieces if we tried to use the nail-point to pivot them on.

Fig. V. shows how the uncapper who works on that side of the uncapping-box must reach over with his left arm to deliver the comb to the comb-box next to the extractor. This is the only unhandy move an operator has at our uncapping-outfit; and the man who works on the near side does not experience that, for the comb-box is on his left, and he can set his stack of combs to be taken up and uncapped right under his left hand.

Mesilla Park, N. M.

FINDING LOCATIONS IN CALIFORNIA.

Will a Greater Number of Bee-keepers Lessen the Average Production per Colony?

BY E. M. GIBSON.

Mr. P. C. Chadwick, p. 23, Jan. 1, thinks I am unfair when I say there were scores of bee-keepers who did not produce a pound of honey, but it was not the fault of the season or the bees. Then he adds, "the implication is that it was the fault of the bee-keepers." Most assuredly that is what I intended to imply. Perhaps I did not go into detail as much as I should; but no doubt all contributors try to express themselves in as few words as possible; for in these days of cheap and good literature the prosy fellow's writings are going to be passed by. I did not produce enough honey for a full car-load, and the railroad company asked more to ship what I had by local freight than they wanted for a car. I wrote to several producers to see if I could buy enough to fill a car. From some I received the reply: "Not a pound of surplus this year;" from others that they had "a few cases," the amounts ranging from six to thirty-five

cases (720 to 4200 pounds). What inference could one draw from such replies but that some of their bees were in better condition than others, knowing their ranges were practically the same? Some years a few miles makes a vast difference, but this year conditions were very similar throughout the country.

Mr. Chadwick also says he could not point to a single bee-keeper who depends on his bees entirely for support, and I opine he never will until they drop other vocations, stop scattering their forces, and attend strictly to their bees. If work is pressing, and any thing has to be neglected, it's always the bees. I could point to several who depend entirely on their bees for support, among them the writer. I do not even raise the feed for my horses. By working overtime I might get the seed planted, but the harvest would come just at the time my bees need attention the most. Modesty would suggest that I say nothing of my own success, but I know of others who are making a good living, and some of them with whom I have had dealings, I notice, carry a check-book. Those people to whom Mr. Chadwick refers, who keep a few bees, must surely make something or they would not bother with them; and if they can make something from a few without much attention, they would make correspondingly more with a large number and good care. One would not expect a farmer to make a living from ten acres of land; but if he had ten times ten he might do well. Editor Hutchinson sounded the keynote when, in answer to the question, what to keep in connection with bees, answered, "More bees."

The desire of some to locate too near the coast is a mistake. I know of no one who is not back from the coast more than fifteen miles who is making a success with bees. It is much more pleasant and convenient to live near the coast; but if one is going to succeed in bee-keeping or any other business he must adjust himself to conditions. "If the mountains will not come to us we must go to the mountains." There is no danger of my being crowded with barley or any other kind of grain-fields, for the country is so rough there is but very little land that could be cultivated. We have no sages in this section but the white. Eriogonum is the sheet anchor of the bee industry here; and, to my liking, there is no better-flavored honey, although it is a decided amber. There is too much difference in the price of light and amber honey. Tarweed honey is quite light, but I would never taste honey if I could get nothing but tarweed.

By the tone of your comments to my article, Mr. Editor, page 718, Nov. 15, 1910, you, with others from whom I have heard, seem to think I am standing in my own light by encouraging bee-keepers to come here. It is not to get more bee-keepers but to get *better* ones. However, if it brings more I shall still feel it my duty to do all I can for them, for I was treated very shabby-

ly when I came here, and I have not forgotten it. Coming here for the express purpose of keeping bees I naturally called on some of the bee-keepers who were quite friendly until they learned I was looking for a location, when they shut up like clams. I had bought 40 colonies of bees, and I wanted a place to put them, for they had to be moved. I tried three different men who owned a lot of rocks and brush which they called ranches, but there was "nothing doing." There were no bees within nine or ten miles, and not three acres on the three quarter-sections that could be cultivated—not a thing the bees could injure, and absolutely worthless except for bees. I am not quite fatalist enough to believe that *all* things are for the best; but in this instance it proved to be; for after I got my bearings so that I knew east from west, and learned what plants produce nectar, I went to the county records and found three much better and more accessible locations than I tried to get at first. After reading the foregoing, if there were any who considered me a fit subject for the insane-asylum, I think they will change their verdict.

HIVES ON BENCHES MUCH EASIER TO MANIPULATE.

In looking at photographs of apiaries in which the hives stand on the ground I often wonder why those who are old enough to begin to realize that they have backs do not have their hives on benches. There is no harder position for me than to work half bent over for a long time. Benches that are 14 or 15 inches high bring the super at just the right height so one can work standing straight. The only reason that I can see for having them on the ground is that they *think* it saves bees that miss the alighting-board; but does it? Are there not many more bees caught by toads, lizards, skunks, etc., than would get lost by missing the alighting-board? If not too busy I always watch a bee if I see one miss; but I can not call to mind an instance when she did not take wing and enter the hive after resting a short time; and if the alighting-board extends four or five inches beyond the hive, but very few will miss it. Then, too, when the grass gets four or five inches high it's a nuisance, and much time is required to mow and pull grass and weeds, which is quite an item when one has many bees; but when they are on benches the grass does not bother until it is 17 inches high, and one mowing will usually be sufficient, especially in this country, where the dry season commences in May. The bottom-boards will last as long as the rest of the hive when on benches. Ants can be kept from hives in countries, where they are troublesome, by daubing the bench legs with axle-grease occasionally. I have seen alighting-boards ruined by skunks scratching on them to get the bees out so they could catch them. Benches, as I make them, are cheap, strong, and easily put up.

Jamul, Cal.



E. D. TOWNSEND ILLUSTRATING FOR BEGINNERS THE PROPER USE OF SMOKE IN OPENING A HIVE,

THE USE AND ABUSE OF THE SMOKER IN HANDLING BEES.

The Varying Dispositions of Bees Make Different Treatment Necessary.

BY E. D. TOWNSEND.

The smoker, the most useful implement about the apiary, seems to be given but little consideration by the modern writer. They are so common that we are likely to give them less credit than they deserve. If we were to be deprived of smokers for even a single day their great value would be more apparent. Of as much importance as the smoker is the "knack" of knowing how much smoke to use and the proper time to use it. The bee-master who has acquired the knowledge of quickly reading the disposition of the individual colony he is handling, so as to know just how much smoke it will take to handle the bees to the very best advantage, is an artist. How many times the aspirant to apiculture, in that bungling way peculiar to the tyro, pries open the hive with many a jerk, using no smoke until the cover is wholly removed. If the colony is one of the nervous kind, the bees by this time are already in a condition where smoke will hardly subdue them. How different it would have been, had there been just a little smoke blown in at the entrance before the cover was pried loose, then, just as soon as the cover was pried up, a crack, a little more smoke, as in Fig. 3, then, as the cover is lifted up, more smoke should be given, as in Fig. 4. By this time the bees ought to be quite well subdued; but if not, more smoke is necessary, and the smoker should be held to one side of the hive, as in Fig. 5, where, taking advantage of the wind in this case, the smoke is allowed to blow across the top of the hive. For any further smoking the colony may need, the wind is taken advantage of as in the last case.

After removing the cover, as in Fig. 5, any adhering bees are dislodged by bumping the corner of the cover upon the ground, near the entrance of the hive. There are nearly always some young bees adhering to the cover. If they are dislodged near the entrance, they will find their way home. However, with the hive-cover in the position shown in Fig. 5, many of the young bees will fall upon the ground near where the work is being done; consequently, many would be stepped on, and the young bees that can not fly are just the ones that do considerable crawling; and if one's pants legs at the bottom are not tied the bees may crawl up inside. If the cover is turned half way round, as in Fig. 6, any young or cross bees are dislodged on the further side, and this trouble is avoided.

There are hardly two colonies in a hundred of the same disposition. Some need hardly any smoke, and others need but a single smoking for the whole manipulation; but there are some colonies of a more nerv-

ous disposition that may need smoking almost continuously. The beginner seldom knows how much smoke to use to handle these varying dispositions in bees. Some beginners use much too much, while others think that smoke hurts bees and use too little. Smoke does not hurt bees more than it does man. But too much smoke spoils the flavor of comb honey, and for this reason comb honey should not be smoked more than is necessary to handle the bees. But this is another subject. One is able to stay in a room with some smoke in it, though it is rather disagreeable; but when the smoke gets about so dense, we can not stand it any longer and leave. It's so with the bees. A very little smoke will drive some bees from the hive, while others, less nervous, will stand more. Any colony, no matter what its disposition, can be driven out of the hive with too much smoke. It is useless and very cruel to use more smoke than is absolutely necessary to do the work.

Bees smoked out of their hive, in some cases so that they take wing, are in poor condition to be controlled with smoke. They should be kept in the hive as much as possible; but if, through some bungling, bees are forced out at the entrance, or caused to "boil over" at the top, it may be better to close the hive for the time being, until they have time to quiet down. Later, knowing their disposition, the cover should be carefully removed, and smoke given, care being taken not to jar the hive in removing the combs; and one will be surprised at the different behavior of the colony. In smoking a colony of bees preparatory to handling, and when they are still in the hive, the smoke should be blown over the top of the hive, as I told you above, and illustrated in Fig. 5. An effort should be made to subdue them. No one was ever stung by a bee down in the middle of the hive. It's always those bees that are at the top that do the stinging. Knowing this, the operator should keep his eye upon those bees near the top; and just as soon as a single bee is seen to leave the combs in a stinging mood, a little more smoke should be given.

The experienced hand with bees will know when there is too much smoke, *before* any bees take wing. Usually the first indication of bees needing smoke is when a row of "guards" form in line along the top-bar of the brood-frame. At first only a few will be seen, casting their eyes upward in a threatening attitude. These few may be somewhat down among the rest of the bees (all of them being previously smoked down below the top-bars); and if they are allowed to go ahead without smoke, more guards will form; then, as their number increases, they will venture up to the very top of the bar. By this time the guards are numerous, and, if not smoked down again, some will begin to "squeal" and make a wing motion, a threatening signal. This is the last safe moment one can keep on without smoke; for it is but a moment before some of the "advance guard" make the attack.



SHED APIARY IN NEW MEXICO, CLOSE TO PUBLIC HIGHWAY.

After all one writes about handling bees with smoke, and about the varying dispositions of the different colonies, practical experience is the best teacher; but if I have suggested something that will cause some thought in connection with this experience I shall be satisfied.

THE SMOKER AND THE FUEL.

After having had considerable experience with the different sizes of smokers we have unanimously decided to buy nothing but the four-inch size. At several of our yards we have some smaller smokers; but as long as there are large ones around, the smaller ones are never lighted. These larger smokers burn longer, and it is not so much work to prepare fuel for them, as almost any thing will burn in them when once a fire is started. Then when in working order, one has at his command either a large or small volume of smoke as may be necessary.

Fig. 1 shows our method of lighting the smoker at outyards where a match has to be resorted to. For kindling, very rotten hard-maple wood is procured, although several other kinds do very well. This rotten wood lights very readily with a match; then when it is well under way, some of the same material, not quite so rotten, is added. Finally, after all is quite hot, and a good volume of smoke is secured, some of the regular hard wood is put in. An inexperienced person will almost invariably stop puffing the smoker too soon, before the fire is well started; consequently, about the time he gets a hive open and is in need of smoke, none is available. Take time to puff the smoker until it is well agoing and the fire is very hot, Fig. 2, then there will be no trouble about the smoker going out until the fuel is all gone.

Remus, Mich.

A SHED APIARY IN NEW MEXICO.

Why are the Queens of Natural Swarms Killed?

BY B. B. FOUCH.

I am sending a picture of a part of my apiary, where I had more than 300 colonies last fall. This apiary is right close to the county road, as shown. There are two sheds side by side, with two rows of hives under each. I can go between the rows with a wheelbarrow or cart and take eight supers at a time. I run for both extracted and comb honey. During the last three years I have lost a good many queens because the hives are so close together.

There is a question that I should like to ask: During the last three summers nearly all of my queens with natural swarms have been killed; for the instant that I shake the bees into a box or hive, the queen is balled. I cage the queens as soon as possible, but sometimes they have one or two legs paralyzed from stings, and eight or nine out of ten are killed outright. What is the cause of this?

Chamberino, N. M.

[This is very unusual. If any one has had a similar experience, or can offer a satisfactory explanation we should be glad to hear from him.—ED.]

ADVERTISING HONEY IN LOCAL PAPERS.

BY A. E. BERGQUIST.

When I first started, some eight years ago, I knew very little about bee-keeping; but after I had bought the first colony I began to study books, and subscribed for bee papers, and gained experience every year.

My first crop was 20 sections of comb honey; and, even as little as it was, it was about all that I could sell in our town of three grocery stores. I received \$1.95 in trade. Honey was a drug on the market here, as people seemed to consider it a luxury. Whenever I got opportunity I told of its value, and finally I got one after another started until now I am not able to supply the demand.

One time when I was in the office of our local paper I asked the editor if he would like to have some articles about honey and bees, and he said he would be glad if I would furnish him some, which I did. Just think what a lot of good advertising we bee-keepers can get for nothing but a little trouble, that otherwise would cost us thousands of dollars! And such advertising is even better than the ordinary kind, because articles among the reading-columns are more likely to be read, and will, in most cases, have a stronger influence on the readers.

I believe that if the bee-keepers would work together and furnish some good articles about honey to the editors of their papers they would be gladly accepted, even in the large cities.

Lindstrom, Minn.

BEE-KEEPING IN FLORIDA.

Some of the Difficulties.

BY E. G. BALDWIN.

Continued from last issue.

Ants, even in the North, are considered a nuisance. In Florida they constitute a real pest—not so much the small black ants as the big red fellows, the nocturnal ants, the so-called "bull-dog" ants; the latter are a thorn in the flesh for bee-men here. Honey-houses have been built and discarded; but the foe, like the political grafter, is ever present. He is sleepless. These ants frequent hollow stumps, rotting roots of trees, the decaying "boots" of cabbage-palmetto trees. Their strong jaws are like pincers, and they love honey as dearly as do the bears. More than that, they are fond of brood, and do not object to both at once. Their favorite method of attack seems to be as follows: They first secrete a portion of their forces under the alighting-board, the hive-body, or the bricks or stones of the hive-supports, even behind an old division-board, or under the cover, if it allows a space not accessible to the bees. These act as advance guards, constantly harassing and worrying the bees, and seem to keep the rest of the ant colony informed of affairs. After a period of guerrilla warfare with the colony selected for their operations, they select a favorable opportunity, bring up the reinforcements, and make a combined attack all along the line. They prefer a wing, but will take a leg or a thorax or a head, "catching as catch can." The bees at first resist bravely; but when a horde of invading ants assail them at once and persistent-

ly they soon give up and are doomed—that is, unless the bee-keeper comes in time to the rescue. Imagine nuclei exposed to such mrauders! The only defense bee-men now make is to keep all colonies Italians, boiling over with bees at all seasons, so far as possible, waging meantime a ceaseless war on all nests that can be found near or far, with hot water, kerosene, or bisulphide of carbon. Many report fair success in diminishing very materially the number of ants by such methods. Even the nuclei we must keep strong—nothing less than a three-frame nucleus sufficing for safety, and even these must be kept boiling over with bees. The entrances, of course, to all nuclei are made very small. Every once in a while, with all safeguards, some small colony will succumb, and the young virgin of the day before vanish with all her attendants, a prey to the merciless jaws of the ants. Some idea of the magnitude of the ant-pest can be obtained from the experience of Mr. S. S. Alderman, of Wewahitchka, Fla., who lost 125 colonies by them the past season. But Mr. W. S. Hart, of Hawks Park, tells me that the incessant warfare of the past twenty years is telling very hopefully on the number of the invaders.

We read of forest fires in Wisconsin and Michigan. Forest fires also do much damage here—not so fatal nor so dangerous, but damaging to a great degree in many portions, especially the southern parts, in the palmetto belt. The cattle-men, who almost own that part of the State, burn over the thickets of saw palmetto as often as it will burn. This is to give fresh green feed for their roaming herds. Fortunately such undergrowth will seldom become thick enough to burn much oftener than once in two years. Of course, it damages the crop only for that year, doing no lasting harm to the trees. The saw palmetto is the only one hurt, because its trunk creeps along low on the ground. Mr. Shumard lost many hives and colonies one year from forest fires attacking an out-apiary, and says they were worse the past spring than he has ever known them to be. Mr. Rood tells the same thing for this year. Mr. Rood also says he can not keep more than an average of fifty or sixty hives in a place, because of the shortening of pasturage due to fires. All bee-men suffer, and complain of the burden, except in the far northwest, where forest fires do not come.

Furthermore, the months June, July, and August are the rainy season here. In sections where the sources yield during those months, the surplus is rendered very uncertain by the rains. If they are excessive, as in the past year, almost no surplus will be secured, the rain washing the nectar from the blossoms, and also allowing very little fair weather for the bees to fly. The honey always seems darker and stronger, too, in such a season. The blossoms of the palmetto are very much subject to blight if rains are too heavy. Were it not for this the cabbage palmetto would be a much surer crop.

The rainy season is a sore trial to the queen-breeder if the rains are too heavy—that is, if they fall for too large a portion of each day. Usually the rain falls for an hour or two, then clear weather follows, and all is well. In excessive rains, however, it is hard to get queens mated, and the colonies are dull and inactive; build few or small cells, and are unsatisfactory generally. At such times pollen is scarce, and bees absolutely refuse to breed. The dragon-fly, or mosquito-hawk, is a very serious menace to young queens on their nuptial flight. At such times the eager queen-breeder will search in vain in his nuclei for the laying queen he expected to find there. In some years these pests destroy at least 75 per cent of the virgins; in others they seem to affect the mating very little. Of course, the larger the apiary the smaller number, relatively, of mating virgins is lost. Two years ago the writer lost about every other queen from this cause; since then, hardly any. I have yet to communicate with a bee-keeper in this State who admits that he is free from the danger of these flies. Mr. Case tells me that he has lost as high as nine out of ten virgins from them. Toward nightfall they may be seen darting back and forth before the hives, and now and then darting this way or that to snap up some returning bee. By day their flight is high over the apiary. Their flight is exceedingly swift, and their wings and jaws are very strong. I know of no way to combat them, nor have I ever heard a method proposed.

It might seem almost ridiculous to say that bears are still troublesome in Florida; but the experience of Mr. S. S. Alderman, Wewahitchka, makes it necessary to mention them. Mr. Alderman lives near the dense swamps of West Florida. The bears live in these swamps, and are inaccessible. Mr. Alderman lost fourteen hives by bears one night last summer. Formerly they were bad on the East Coast; but of late years they have disappeared before advancing civilization, till now they seldom molest any of the hives in that section. In 1900 bears destroyed over \$400 worth of bees along the Hillsborough River, East Coast, and wrought no little damage in 1904. The late Mr. Cornelius Longstreet, of Coronada, used to tell thrilling experiences that he had with this honey-loving "varmint." They have almost become a matter of merely historical interest in the annals of Florida bee-keeping.

De Land, Fla.

To be continued.

THE HAND SYSTEM OF SWARM CONTROL.

BY J. E. HAND.

On page 207 Mr. Crane calls the attention of the readers of GLEANINGS to what he evidently considers some of the objections to the Hand system. It is true that this system is not adapted for use with hives hav-

ing a stationary bottom; but when we consider that there are comparatively few of this class of hives in use, and that such hives are no longer listed in any of the supply catalogs of this country, this certainly can not be regarded as a serious objection.

He assumes that all intelligent bee-keepers recommend *very* strong colonies early in the season. I hardly think Mr. C. would wish to go on record as saying that such men as G. M. Doolittle and E. D. Townsend are not intelligent bee-keepers, and yet if he will take the pains to inform himself he will find that neither of these men is in favor of such a practice, for the reason that such colonies will likely swarm before the main harvest, which, every well-informed bee-keeper should know, would result in disappointment and loss in honey production. The Hand system not only prevents the issuing of premature swarms, but it goes a step further and compels all colonies to swarm just when we want them to, regardless of whether they have made preparations or not. We can separate the bees from the brood by shifting them into a new hive in less time than would be required to make the weekly examination after the supers are in place.

Again, he assumes that the giving of a super of empty combs above a queen-excluder can be depended upon as a means of swarm control except prior to the main honey-flow, since such combs must be removed shortly after work has begun in the sections. While this, as well as providing shade and ventilation, will have a tendency to check and delay swarming, none of these things can be depended upon as a means of absolute swarm control. His third error, and perhaps the greatest one of all, is in magnifying the difficulty of finding the queen at the time of making the shift.

Now, I did not deem it necessary to explain that the bees could be shifted just as well without the queen if the frame of brood were given, after which any one should know there would be little difficulty in locating the queen. Three minutes' time is sufficient to place the top story down on the vacant side of the switch-board, and exchange the central comb for a comb of brood without looking for the queen, owing to the hives being so close together that the manipulation is performed without moving from one's tracks; and surely three minutes' time should be amply sufficient to locate and remove a queen after the bees have been practically all removed. When we consider that this slight manipulation, requiring less than six minutes' time, settles the swarming problem during an ordinary honey-flow, it seems to us there is little ground for a claim of excessive manipulation. It is true that bees may be shifted from one hive to another by exchanging heavy hives, shaking and brushing bees, etc., all of which entails a great amount of useless labor that is entirely out of proportion to the results gained. It is equally true that swarming may be controlled by removing the queen,

cutting out queen-cells and a lot of other fussing that the busy honey-producer can not afford. I am pleased to note that Mr. C. speaks a good word for the part of the system that he has tried, and I feel confident that he will be equally pleased with the working of the switching equipment after giving it a trial.

Birmingham, O., April 4.

[If our correspondent will turn to page 207, and read over the second paragraph of Mr. Crane's article again, we believe he will see he has misread Mr. Crane. While he did use the phrase "early in the season," it is evident he had in mind the very practice Mr. Hand was advocating, for observe Mr. Crane says, "To secure this, he tells us that all colonies not strong enter the supers *at the beginning of the harvest*"—italicized words ours. From this it is plain that both men are talking about and advocating the same thing. In this connection it is perfectly true that there is such a thing as getting colonies too strong too early in the season. While this is not usually possible in most northern localities, Mr. Crane is too good a bee-keeper, if we may judge by his crops, to make this mistake.—ED.]

A GOOD OUTFIT FOR A BEGINNER.

BY E. D. TOWNSEND.

I don't care to extract any honey this year. I want my surplus put in sections. I would like to have you tell me what size hives to buy, also the kind, and what other supplies I am likely to need.

Ft. Dodge, Iowa. E. E. TOWNSEND.

I would recommend the ten-frame Langstroth hive, with Hoffman frames. Assuming that the five hives your bees are in are good enough for use, so you would not have to replace them, I would buy ten new hives. At first thought this would seem rather too many hives—that there would not be natural swarms enough to fill them the first season. But you must take into consideration that you are a beginner, and, as such, you will have a larger per cent of swarming, the first few years, than you will later, when you acquire the "knack" of getting honey instead of swarms. Then, if you have the "stuff" in you that is necessary to make a bee-keeper and that enthusiasm so apparent in a beginner, you will care more about getting swarms than honey, for a few years at least. We buy all of our hives in the flat to save freight and expense. The hives and supers are packed five in a crate; and to buy them otherwise, entails additional charges, etc. It is evident that five hives would not be enough to buy for an ordinary season's increase, so the advice to buy ten hives the first season, in your case.

Were I starting anew, as you are, I would adopt the new deep super, holding a plain section $4\frac{1}{4} \times 4\frac{3}{4}$, and I would buy the $1\frac{1}{8}$ -inch-wide size, so that an extracting-frame will interchange with any row of sections, as "baits" to entice the bees into the sections. On account of brood and pollen be-

ing stored above if the extracting-combs are placed in the center of the super, and since we want the bees to begin work in the most neglected portion of the super first, to get best results in fancy-comb-honey production, I would recommend that an extracting-comb be placed at each outside of the super.

Then you will need sections and foundation. Be sure, in ordering your hives, to mention that the brood-frames should be pierced and wire included. We use and recommend, for brood-frames, full sheets of medium-brood foundation. It will take 14 lbs. of brood foundation for your ten hives.

You will also need 500 plain sections, $4\frac{1}{4} \times 4\frac{3}{4} \times 1\frac{1}{8}$, and I would buy the better grade known as the "A" or No. 1. We use full sheets of extra-thin foundation in our sections, and it will take 5 lbs. to fill your 500 sections.

Remus, Mich.

GARDEN BEE-KEEPING IN ENGLAND.

BY A. H. BOWEN.

These lines are written from the garden town of England, nestling under the well-known Cotswold Hills, known by reputation to some of your readers, and visited, perhaps, by others. The past two summers have been very disappointing to bee-keepers, as the weather has been cold and stormy, with high winds, during the blooming of the principal flowers; and the resulting crops, though of good quality, have been very small. A good deal of feeding was necessary in the autumn; but I am pleased to say the majority of colonies have come through the winter in fine condition, and, with a favorable season, should give a good account of themselves.

Bee-keeping is carried on extensively in this district, there being several hundred colonies located at different places on the hills, amid acres of sainfoin and white clover; and with a system of swarm control adapted to the district we get practically no swarming—a decided advantage when apiaries are situated six to ten miles from home.

When working among bees I find the carbolic cloth a great help, and superior to smoke in many respects; for as my bees are of the native black race they are easier to control, and less irritated, than when smoke is used.

It would be interesting, if it were possible, for some of your thousand-colony bee-men to come with me into one of the quaint old-fashioned Cotswold villages and see for themselves the half-dozen skeps of bees standing in the cottage garden, and have a chat with the old skeppist, a picturesque figure who is hard to convince that the modern hive will ever form such an ideal home as his own stout domes of twisted straw.

Cheltenham, England.

Heads of Grain

from Different Fields

How to Hang Foundation in the Hive; Does it Make any Difference How it is Hung?

In looking through the A B C and X Y Z book I notice that the natural comb is made by our little friends the bees with two vertical sides, thus: I have just bought some cut 4x5 foundation from a dealer, and it has been cut so that it lies in the sections having two horizontal sides, thus:  and I am inclined to think that  this will make a difference in my honey surplus. Will you kindly answer through your columns what you think in regard to this, as several of us are quite interested?

INSPECTOR F.

Most comb foundation is milled so that, when the sheets hang in the frame, two sides of the cells are vertical. The super foundation for 4½ square sections, however, is used either way; that is, with two horizontal sides vertical or horizontal. The super foundation for 4x5 sections is usually cut so that the sheets are put into the sections with two sides vertical. Perhaps this that you bought had been cut down from a larger size, so that the cells happened to lie the other way around—that is, with two parallel sides horizontal. However, we are very sure that you need not be anxious as to the results, for, so far as we can see, it makes not the least difference, especially in the sections, which way the foundation hangs. One of our men once made an experiment that proved conclusively this very point. He equipped ten comb-honey supers with foundation so cut that there were two horizontal walls and ten other supers with the foundation cut in the ordinary way, the cells having two vertical walls. He made careful note of the results from the time the bees entered the supers until the honey was finished, and he found that there was not the slightest difference in the time when the bees began to draw out the foundation or in the time the work of sealing began.

The statement has been made that for broad-frames the foundation should always be cut or milled so that the cells have two vertical walls when the frame is in position in the hive, for the reason that the foundation would stretch less when so cut than if two cell walls were horizontal. Possibly this may be true; but an experiment that we performed recently seems to show that there is not much difference as to how it is hung. Two long wooden clamps were attached to two pieces of foundation, in one of which pieces two parallel walls were vertical; and in the other, two parallel walls were horizontal. The upper clamps were secured to the top of a window into which the sun was shining, and weights were attached to the lower clamp. Out of four trials the results were evenly divided; that is, twice the piece of foundation having vertical walls pulled apart first, and twice the other let go first. In each case the wax pulled apart at a point between the two clamps, showing that the clamps themselves had not weakened the foundation.

When bees build natural comb, in most cases they build it in such a way that there are two vertical cell walls; but we have seen it several times the other way. Therefore, it apparently makes no great difference to the bees; and if the results in the sections and in the artificial-stretching test are the same, we see no reason why any one should be concerned over this matter as to which way the foundation hangs in the hive.—ED.]

Gable Covers; the Right and Wrong Way to Make them.

Last October you published a short description of a hive-cover designed by me, p. 769. In your comment on the cover you said the boards would "check or split at the nails" if not covered with paper or other material. I wish to say that you are wrong in that statement. Possibly thin boards would crack in some climates; but I have quite a number of covers, the tops of which are nailed to end pieces in exactly the same manner, and there

are but very few cracks. Most of my hives are double-walled, and all of their covers are nailed like that, and have no metal or paper over them. In fact, I think your own double-walled hives (covers) are nailed that way. Do you cover them with paper or metal? If not, they must crack and split, according to your statement.

If boards $\frac{1}{4}$ inch thick are used, or even $\frac{3}{8}$ inch, and the boards project over the ends but very little, or large nails are used, then the boards would be liable to split. But if half-inch boards are used, and allowed to project so that the nails are an inch from the end of the board, and small nails (the same as you use for the F cover) are used, you will find but very little splitting. Of course, any cover will split sometimes, owing to several causes. The boards may be $\frac{3}{8}$ inch if allowed to project $\frac{1}{2}$ inch more beyond the ends. But it would be cheaper to use several narrow boards, and cover them with paper, which was what I had in mind. Made in this way it is very much superior to your G cover, with which I have had lots of trouble. The only fault (?) is that one hive can not be set on top of another; but as it was designed for outdoor use entirely, that does not matter. I think an impartial investigation will prove what I say.

Mystic, Ct.

ELMER E. WAITE.

[Our correspondent fails to take into consideration the fact that this is a big country, with a great variety of conditions. In one portion of the country, especially in the East, there is a large amount of humidity. In the arid regions we have extreme dryness. In other portions of the country it will be very wet during one season of the year, and very dry at another—so dry, indeed, that vegetation, even grass, is killed. A device that might give perfect satisfaction in one section of the country might give any thing but good results elsewhere. Mr. Waite does not take into consideration the fact that the experiences of a supply-manufacturer who deals with every section of the country should have vastly more weight than the experience of one man in one locality.]

While it is true, as he points out, that we once used the same type of cover which we condemn, for our double-walled hives, it has been several years since we manufactured them. We have been using a flat roof for these hives, covered with metal or paper, as experience showed us that the former type of roof was very poorly suited for some portions of the United States. It is our policy now not to make any covers using thin boards that are not covered with metal, and that will not allow for the contraction and expansion of the boards. For that reason the roof-boards in all types of cover that we now make that are not covered with metal or paper are inserted in grooves cut in the end cleats. These end cleats are held in place by means of nails put close together near one edge of the roof-boards, leaving the other edge to come and go.

We found it necessary to adopt the same general scheme with our bottom-boards. While the principle has its objections, it is much more satisfactory than placing nails as our correspondent suggests. No, it is not true that making the boards longer so that they will project over more will prevent checking for all localities. It might and probably would do in Connecticut.—ED.]

Bees Dying with Plenty of Honey in the Combs.

I have ten colonies that were strong, but the past year they all died but one. There was plenty of honey in the hives, and but very few dead bees. The combs were very clean, and all the honey was sealed. In some of the hives the combs were stuck together with a substance resembling cotton, with a foul odor. If it is a disease, how can I get my hives in condition to fill them with bees again? A bee-keeper told me to put the hives, combs, and all with supers, and all tools, in a tight room, and burn sulphur. Would that leave the odor of sulphur so that the bees would not stay in the hives? A neighbor lost forty stands the past year, the same as I have.

Kankakee, Ill.

L. L. STIRLING.

[There are so many reasons why bees might die in winter and still leave honey in the hive that we are not sure we can give you the real cause of the trouble you mention. We would say, however, that starvation may occur, even when there is honey in the combs; for, unless the cluster is large enough so that the bees can maintain the animal heat necessary in the hive to move across to other combs to

get the honey, they remain tightly clustered until they die from lack of food. It does not pay to attempt to winter weak colonies. All such should be united in the fall, so that there will be good large clusters of bees. Furthermore, the colonies in the fall should be headed by young queens, and there should be a good percentage of young bees in the hive. A large colony of very old bees will die almost invariably. Very old bees in the fall are not worth much, any way.

From the symptoms you give, we do not see any evidence of disease; but if bees are dying so rapidly in your locality it would be well for you to keep careful watch of the brood in the summer time, and to see that it is healthy. If you find the brood dying off rapidly you should investigate at once, and send a sample of it to Dr. E. F. Phillips, in charge of apiculture, Bureau of Entomology, Department of Agriculture, Washington, D. C., who will look it over and report to you, without charge, the cause of the trouble or disease, if such it is.

The substance resembling cotton that you mention is probably the web of bee-moth larvae. You can give such combs to strong colonies, one at a time, to clean up; but you must be careful not to give more than one comb, or possibly two at the most, to any one colony. Good strong colonies of bees, especially if they are Italians, are rarely troubled by moths. We do not think that fumigating by means of burning sulphur would do any good, nor any harm either, for that matter.

To get a start again, perhaps you had better cut out the worst of the combs, melt them up for wax, and, after cleaning up the inside of the hives, scraping them, etc., put full sheets of comb foundation in the frames and put your new colonies or swarms that you buy into hives so equipped, reserving the best of the old combs that you keep over to be cleaned up later. If there has been any trouble with brood dying, however, in your community, we would not use the old combs again under any consideration, but would cut them out, melt them up for wax, and fill the frames with full sheets of comb foundation instead.—ED.]

Is Spring Dwindling Caused by the Loss of the Queen?

A good deal has been said in *GLEANINGS* about spring dwindling. While I am not an extensive bee-keeper, possibly my experience this spring may offer some suggestions as to the cause of dwindling. I had eight colonies last fall which were packed by a method described on page 207, April 1, 1910, with sealed covers, having $1\frac{1}{2}$ -inch bee-space above the frames. I placed the hives six inches apart on a platform eight inches above ground, ten inches from an out-building, the spaces between being packed with dry leaves, with a tar-paper roof to furnish protection. Nevertheless, I lost 50 per cent. Two colonies died from starvation, as there was no honey in either hive; the other two had at least 20 lbs. of honey left in the brood-chamber, but the dead bees were scattered all over the hive and throughout the open and empty cells. They lived until about two weeks ago. When I noticed they were dead, I took out the frames, and was very careful to make a thorough examination of the dead bees for the purpose of finding the queen, but without success in either hive. In the summer time, too, a colony without a queen will dwindle in three or four weeks until there are hardly any bees in the hive; therefore I fully believe that spring dwindling is, in a measure, due to the loss of the queen during winter time.

In regard to the bees dying as they did in the last two hives, I think it was due to lack of ventilation, as their entrances were contracted to $\frac{3}{8} \times 6$ inches, while the other four which I had left had an entrance of $\frac{7}{8} \times 8$ inches, and wintered perfectly with scarcely any loss. I have come to the conclusion that the colonies which were lost did not get air enough, and the bees scattered in the hive and then froze to death. Hereafter I will see that my hives have an opening of at least $\frac{3}{8} \times 8$ inches. Is an entrance of this size too large? and am I right in what I have said about spring dwindling?

FRANK LANGOHR.

Columbia City, Ind., April 3.

[A colony or colonies without queens are liable to die, either in the winter or in the spring. I do not think you will need to go much further than the queens to find the source of your trouble, in

the case of the two colonies that survived along until spring, and then dwindled away. The fact that they had entrances more contracted than the others, we do not think had very much to do with the matter. Of course, when colonies die for want of stores we do not need to theorize about it one way or the other; but our experience has been that a colony will consume more stores, and sometimes starve to death, because of too wide open an entrance, or insufficient packing.

You speak of another condition—that your hives were put on a platform eight inches above the ground. If you had no slanting boards up from the ground to the entrances of the hives you would lose large numbers of bees in the spring that would fly close to the hive, and strike the ground, too chilled to fly any further, but not too chilled to crawl into the entrance providing they had a runway. It is all right to put hives up off the ground; but there should be some sort of runway from the ground to the hive.—ED.]

Transferring by Placing the Old Hive Above the New One, with a Queen-excluder Between.

When transferring, how would it do to place a new hive with combs or full sheets of foundation on the old stand, and shake the bees, including the queen, before the entrance, allowing them to run in; then place a queen-excluder over this new hive, and on top put the old hive? In five days look over the old combs above in the old hive, and cut out the queen-cells if any have been started. By this plan would not the old combs above be practically vacated after 21 days from the time the transferring was done?

Durand, Ill.

M. LUCY FRITZ.

[When transferring you can put the old hive above a queen-excluder as you outline; and, although the queen will remain below if she is placed there on the new comb, the bees, if there is any honey coming in at the time, may store honey above. However, as transferring is usually done before the main honey-flow begins, there is not likely to be any great amount of honey placed above.—ED.]

Proper Time to Shake Swarms.

In regard to brushed or shaken swarms, there appears to be great diversity of opinion as to the proper time to perform the operation. One writer says, in italics, never do it "until there is evidence that the bees are making preparations to swarm." Another is no less emphatic in saying, "It is useless to undertake it after the bees get the swarming fever." Then it must naturally follow that the one or the other is in error, or it makes no difference whether it is done before or after the "fever."

Can you not, by getting the opinions, with the reasons, of several extensive bee-keepers, in some degree settle these differences for the benefit of the ever-recruiting army of novices? If these bee-keepers are widely scattered over the country we may get some idea from their replies whether the season, the climate, the location, or some other factor is responsible for their opinions.

Hoboken, N. J., Jan. 14.

NOVICE.

[It is not at all strange that a beginner should be confused over these apparently paradoxical statements. Perhaps we can explain. It is true that there is no use in shaking until the development of certain conditions; as, for example, the starting of queen-cells and the whitening of the combs near the top, showing that the bees contemplate swarming after the cells are capped over. To shake before these evidences appear, is premature.

Again, it is generally useless to undertake shaking after the bees have got the *mania* for swarming. Your confusion arises over the meaning of the word "fever." When a colony is bent on swarming, has cells capped over, and virgins hatching, shaking probably will not do much good. It should take place when cells begin to start, and not after they are capped over and virgins are hatching out. In the first case there is no mania or fever—simply an indication of a mania or fever that will take place ten days after. Now, then, when that mania is on it is too late to do any thing but make a most radical change in conditions. Shaking as ordinarily practiced may be enough; but probably not.—ED.]

Our Homes

By A. I. Root

And God said unto Jonah, Doest thou well to be angry for the gourd? and he said, I do well to be angry, even unto death.—JONAH 4:9.

I have many times pondered and wondered in regard to the passage above, where even God himself, the great ruler of the universe, condescended to stand, for the time being at least, side by side one of his children—yes, and even remonstrate with the child who was angry. And Jonah undertook to defend himself, and even maintained that he "did well" to be angry. In a like manner Elijah, one whom God so greatly honored as to permit him (and almost him alone) to pass over death—even Elijah at one time became rebellious and contrary, and told Jehovah that he wished he might die. How much these biblical narrations impress us with the fact that humanity is much the same now as it was then!

A little over a week ago I got up before it was quite daylight on a Monday morning because I had a busy week before me. It was the week before I returned to my northern home, and my poultry, big and little, numbering something over 300, was to be disposed of or got out of the way for a six months' absence. First I felt a little worried for fear we could not catch the big ducks; but by Wesley's help we got the four safely into some porous sacks, such as we buy with the cats used for the poultry. Then came the task of putting my choice Buttercups, male and female, into some sacks. We have found by experience that these sacks answer very well for putting up fowls for moving short distances, or in the early morning when it is cool. We put four full-grown hens in a sack, then when tied tight at the top, and the sack spread out, they do very well, even in hot wea'ther. Besides the old ducks and the Buttercups, there was a hen with 13 day-old ducklings to be delivered to a customer. We got them all put up nicely, and put them on the automobile so they could get plenty of air, and then I was ready to start. The hen with the 13 ducklings was placed in a shallow box, and a cylindrical poultry-netting cover was slipped over the box. At first the hen made quite a racket on being thus confined; but the noise of the automobile soon quieted her, and the ducklings settled down under her wings with their heads sticking out, and then we were off.

My automobile had at this time run between 500 and 600 miles, and had made almost no trouble; but on that morning, on climbing a sandy hill when I was in a hurry, it threatened to balk, and I barely succeeded in reaching the top of the hill. It acted so badly I thought perhaps the spark-plugs must need cleaning. Now, along with my poultry was a crate of eggs from the Sunday before. In order to get out the

spark-plugs the eggs and ducklings would have to be removed. At the time I set them out I recognized that, with my bad memory, especially when I was disturbed or worried, I was very likely to leave something if I risked putting it out of the automobile. However, I decided that the crate of eggs would *have* to be placed on the ground for a minute or two. There was no other place for them, and I said, as I had said a hundred times before, "Why, I am sure I shall not be such an idiot as to forget to *put back* that crate of eggs." I cleaned the spark-plugs, and started on. In a little time a colored boy was waving his hand, and shouting about something. As my hearing is defective, as well as my memory, I could not make out what he said; but I was becoming impatient, and decided that I could not stop any way. When I got about half a mile further it came into my head that the boy was shouting to me that I had left my crate of eggs standing by the side of the road. I thought of turning around to go back after them, but the machine was still acting so badly I felt as if I *must* get to my destination if possible, and let out my ducks and chickens before the sun got hot. The machine kept acting worse and worse. It was losing power so it could only just "crawl." But I pushed on at a snail's pace until I was just about a mile from home and a mile from neighbor Abbott, where I was going. Then it refused to go another inch. I cranked it till my back ached and my hands were blistered in the frantic effort to get where I could let loose my charges. The sun was getting hot, the little ducks were beginning to murmur, but their mother, in a very motherlike way, quieted them as best she could. Her hen talk, translated, would be something like this: "Hush! hush! darlings. We shall get there pretty soon, I am sure. I know you are hungry and thirsty; but Mr. Root has been our good friend, and I think he is still. He will get us some food and water after a while if you will be patient."* It was during the Florida drouth I have been telling you 'about, with no water anywhere near, much less any means for getting it to the ducks. I piled them out on the sand in the sun in my frantic effort to repair the mischief, but finally decided I would have to foot it a mile further on and ask neighbor Abbott to hitch up his mule and get me to the repair shop and then get home with the ducks and chickens, as they were becoming very impatient in their respective bags and boxes. I did some tall walking that morning, and presented myself to Mrs. Abbott with the sweat coming from every pore, my hands so covered with automobile grease that I could not even wipe off the perspiration, and announced that I had not a minute to spare on account of my ducks, ducklings, and chickens. Friend Abbott hustled around with alacrity to get me out of my trouble. He pulled my machine to

*One of the poultry journals says young ducks suffer, if deprived of water to drink, even one-half hour.

the garage, and then went back after the poultry. The hen and the ducklings were taken along and delivered at their destination, much to their relief and mine. After a diagnosis of the machine the expert informed me that the principal trouble was with the coils. There was "cross-firing." I could hardly agree with him until the coils and vibrators were removed from the machine. Then with an extra set of batteries he sent a current through *one* of the pairs of coils alone. Well, it not only worked the vibrator belonging to that coil, but the vibrator belonging to the other coil also worked by spells. This working by spells fired the gas at the wrong moment, and threw every thing into a jumble, filling the valves and cylinders with unconsumed carbon, and making trouble generally all over. I asked him if he could not fix the machine so I could use it for the busy week that was before me. He said he knew of no possible remedy unless I could borrow a new set of coils that could be fitted to the machine. By the way, this may be a bad place to stop my story, but I want to moralize right here:

Cross-firing or short-circuiting with electrical apparatus is a bad thing. The trouble with the coils could not be repaired, because the maker had covered the whole thing with melted resin; and it could not be taken apart very well except by the manufacturer. Under the circumstances it was very unfortunate, and it occurred to me that we have this sort of "cross-firing" sometimes among humanity. Many of us have lamented that the Anti-saloon League and the Prohibition party should have wasted their time and energy by cross-firing (producing "explosions" at the wrong time and in the wrong direction), giving our enemies an advantage when it was of the *utmost* importance that we should all pull together and in the same direction. Sometimes in our bee conventions, where a hundred or more people are giving their precious time, some brother gets contrary or angry, as did Jonah and Elijah, and blocks the wheels of progress, stirs up others, and throws every thing out of joint just because his energy and zeal are out of *time* and out of *tune*. I hardly need remind you that even in religious meetings among churches and church-members this same spirit of ill-timed disagreement sometimes comes in. May God help us all to beware of getting out of tune, and not "keeping step" in our honest efforts to better things in this world of ours.

It was getting dinner-time. I had not had my nap just before dinner, and I could not get home without walking a mile or more through the hot sand and sunshine. I could have taken a foot-path on a diagonal were it not that my crate of eggs was still close beside the highway in the noon-day sun, and had to be looked after. Do you wonder that I lost my usual good nature and got a little cross? The expert said he would, if I thought best, go over the machine very carefully after dinner, and see if it was possible to fix it so I could use it dur-

ing the busy week that lay before me; but he had but very little hope without a new coil to take the place of the defective one. There was no help for it. I put off with rapid strides for my crate of eggs, if perchance no colored boy nor anybody else had meddled with it. By the way, let me remark that in and about Bradenton there is the greatest respect shown for other people's property of any place I have ever lived in. I have told you before that people there as a rule never lock their houses. Why, one evening when Mrs. Root and I left prayer-meeting we went to the baker's to get some bread. The baker himself also keeps a sort of restaurant. He and his wife had also gone to prayer-meeting. The front door was locked, but we found the back door open as usual, and I walked into the store and went behind the counter without any trouble, and meditated helping myself to the bread. I laughingly told them afterward that they went to meeting and left the back door unlocked. To my surprise my good friend Trueblood and his wife informed me they *never* locked that back door, and, furthermore, that they had never lost a nickel's worth by leaving their property in that shape. This, too, was on a busy street, and they kept the usual assortment of cakes, pies, etc., right in a showcase that is also unlocked. The secret of this is, dear friends, there has never been a saloon in Manatee County—at least that is one great secret of this. Another thing, the folks there are a church-going and Christian people.

I found my eggs, as a matter of course; but I had to carry them a quarter of a mile to find a place where I could put them in a neighbor's yard until later. When I got home I needed my sleep and I needed my dinner. In fact, I was late for both; but to save Mrs. Root's time I decided to have my nap *after* dinner. She had an excellent dinner, but I was in a bad frame of mind, and I fear I answered her kind questions in any thing but a Christianlike manner. Perhaps she did not remember it; but I *did* and *do*. I went upstairs and tried to take my accustomed nap on my nice soft bed right before the open window where there was a delicious cooling breeze, as there almost always is from across the Great Gulf in Florida; but I was so much disturbed by the machine that I could not sleep. And then I was disturbed by another thing. I was rebellious. I had planned a lot of things to be done during that busy forenoon, and had not *touched* them.

Here is something from the *Sunday School Times* that illustrates the point I wish to make:

Dr. Alexander McLaren has illustrated it well when he says: "The consciousness of God's presence with us is a very delicate thing. It is like a very sensitive thermometer, which will drop when an iceberg is a league off over the sea. At bottom there is only one thing that separates a soul from God, and that is sin of some sort."

My rebellious spirit had cut me off from the consciousness of God's presence. It was something that had not happened for a

long time, and there was no use trying to evade it. I thought of that passage in the New Testament where it says, "If thou bring thy gift to the altar, and there rememberest that thy brother hath aught against thee, leave there thy gift before the altar, and go thy way: first be reconciled to thy brother, and then come and offer thy gift."

Well, I had not had any trouble with any *brother* just then. It was with *my own* rebellious spirit, and I knew that before I could have peace, I would have to conquer it and put it down. I sprang out of my bed and fell on my knees, and the first thing that occurred to me was that wonderful prayer of David when he said, "Create in me a clean heart, O God, and renew a right spirit within me." The words brought some peace to my soul, and then I poured out my heart in a petition for peace and an obedient spirit; and as I prayed I remembered what my good old mother had sometimes said in regard to the troubles that lie before us. She would say, "Amos, I have been praying over this, and I know it will all come out right, and I thank God for the assurance." Some may think this sounds a little like superstition; but the great evangelist and preacher, Professor Fairchild, of Oberlin, tells us that at times after praying most earnestly for certain things it has seemed as if the Holy Spirit said, almost in plain words, "There, there, child, do not pray about it any more. You shall have what you ask for." Well, after my spirit was quieted in a humble way I prayed about the automobile and the busy week. I said that, if it was consistent with God's holy will, I hoped I still might have that machine, adding something like this: "Dear Father in heaven, I know from past experience that things that are impossible with men are always possible with thee. If it be consistent with thy holy will, and not displeasing in thy sight, may that bright young expert who is even now laboring with that machine, have grace and wisdom to drive the busy brain and fingers." After this prayer I had the feeling that the prayer was answered, or at least was going to be answered, before the sun went down. I went back to my bed and had a most peaceful and refreshing sleep; and, much to my surprise, I passed one of the happiest afternoons that I had had for a long time. Now, *this* I did not expect. I supposed, of course, I would have a burden to bear any way. My good neighbor Rood, with his big machine, took me back to town, taking up my basket of eggs on the way, and I worked with the mechanic until toward night. Every part of the machine had been overhauled. The carbon deposit in the cylinder that had stopped progress in the morning had been all carefully removed, and every thing was adjusted in the very best possible manner; and he said, with a bright look on his intelligent face, as he made the last adjustment, "I rather expect, Mr. Rood, that after all this work we shall get *some* pretty good results." As the machine started off

I swung my cap, and the machine did excellent service during the busy week that followed—better, perhaps, than ever before since I had had it, although it is true the current occasionally jumps across on to the neighboring coil and takes off the power, but never stops it. Of course, the manufacturers will make good the fault. When the machine first starts up on a cold morning there is considerable cross-firing; but after it gets a little warmed up to work it seems to run just as well as it ever did. It reminds me of the story of the Irishman who was always telling about the wonderful feats his brother performed during a certain war. Said brother had only one arm. But one day this Irishman, when he was telling his story to quite a little audience, forgot himself and said, "Why, Jimmie killed two of the enemy intirely by just knocking of their heads together." When a bystander called his attention to the fact that Jimmie at that time had but one arm he added, "Yes, yes, that is true; but when Jimmie got a little warmed up in a fight he forgot *all about* his having only one arm."

Now, then, friends, in closing I wish to call your attention again to the extract from Dr. McLaren: "The consciousness of God's presence with us is a very delicate thing." Let us keep this in mind; and whatever temptation may assail us, let us carefully consider that, whatever we *say* or whatever we *do*, may in a very brief moment cut off this consciousness of God's presence that is worth more than any thing else in the world.

At one of our Bradenton prayer-meetings a few weeks ago a young student from Oberlin College led the exercises. He said that at one time his employer, in one of the great Chicago business houses, dismissed a faithful clerk without listening to the full particulars of *why* said clerk had disobeyed orders. He dismissed him with only three or four brief words; but he told a friend afterward he would have given *two thousand dollars* to be able to recall those words. He did try to apologize and recall them; but the faithful clerk had been instantly snapped up by another house who knew his sterling qualities, and it was too late. Shall we, like Jonah, when reproved say that we do well to be angry? or shall we remember that other beautiful text that tells us that "he that ruleth his own spirit is greater than he that taketh a city"?

Before the busy week I have told you about was finished, a rebuke and a reproof for my impatient mood on Monday morning came from an unexpected direction. I was reviewing my periodicals while Mrs. Root lay sleeping on the lounge near by. For some little time I noticed her sleep was broken and troubled. Finally she sprang up with a vacant look, and I found she was feverish; and a little while later she was delirious. I ran hastily for our good neighbor, Mrs. Rood, and she pronounced it a sudden and acute attack of malarial fever. Her preparations were all made for the long

trip to Medina. Almost instantly conscience brought to mind my impatient spirit because the automobile "wouldn't go." Well, it is bad to have an automobile suddenly stranded; but, oh dear me! what does that amount to in comparison with having the busy and helpful wife lie helpless on a bed of sickness? As I went about the quiet house ministering to her wants, in sight of the familiar objects at every turn, that she handled so successfully and deftly, it cut my conscience like a knife, and I inwardly resolved that, so long as *Mrs. Root* was spared to be my helper, I would never again look cross nor feel cross because of the failure of something else. Some sixty years ago a little song called "Annie Laurie" all at once became all the go. Everybody seemed to be singing it. It was before the days of Gospel Hymns, and memory went back and held up before my inner consciousness the words "She's all the world to me." When I first heard it I was just getting acquainted with *Mrs. Root*. And in my boyish imagination she was then, pretty truthfully, "all the world to me." How is it now, after we have fought life's battles hand in hand for just about fifty years? Is she still "all the world to me"? Yes, a hundred times yes, and more so than my boyish imagination of long ago could then comprehend. Under *Mrs. Root's* care and skillful directions she was far enough recovered to start the next week on the 48-hour journey home; and as we take up the threads of life again here in Medina I remember the closing words of that old song, especially when I am tempted to be impatient because every thing does not move as I wish, "She's all the world to me."

Poultry Department

By A. I. Root

MY INDIAN - RUNNER - DUCK STORY UP TO DATE.

To-day is April 6, and my one Indian Runner duck I have several times mentioned is still laying her egg a day, and she has done this now for almost if not quite 100 days without a single break. I have read in the poultry journals of stories like this; but I fear I shall have to confess I never expected to own a fowl of any sort that could give a big white egg (perhaps I should say, rather, a bluish-green egg) for over three months, without a skip. What about the other of the two? you may ask. Well, after I had been scolding her for being lazy for some little time I one day saw the two ducks acting a little queer near some dried-up leaves and brush. A little later one duck was missing, and finally I caught a glimpse of her down under this mass of rubbish. Sure enough, she was on a nest, and evidently did not propose to get off for me or any one else. I finally got her off, but only after a real downright fight. I thought

once she was going to chase me clear out of the lot, and I actually had to get a small stick or club in order to convince her that *I* and not *she* was boss of the ranch. Well, after we settled the matter about who was "running things" I made out to count the eggs and found eleven. You see I had been giving her a bad name while she was quietly attending to business and filling her well-secreted nest. Right here let me remark that a woman said in one of the poultry journals that Indian Runner ducks never sit. How is it, friends, you who know? After her racket about giving up her eggs, she got the pouts and didn't lay for a week or more, but she is again laying now.

As fast as I could get sitting hens, every egg was used for setting, and so far I have had splendid "luck" as the farmers' wives express it. Notwithstanding the caution to give a hen only ten or eleven *duck* eggs I have given ordinary hens thirteen or fourteen, and one hen came off this morning with thirteen bright and exceedingly lively ducklings. Another had 12, another 11, and one hen that had only 12 eggs hatched *every* egg. We now have 49 ducks, little and big, and I sold a brood of eleven "day-old ducklings" for 20 cts. each. We have not lost a duckling, except the two the alligator confiscated, and one that got out of the fold into the great canal, and one more that was gone in the night. You see, after they got a few weeks old they were so much taken up with that waterfall (over the alligator cave) that they just *wouldn't* go to bed at all. Ducks don't go to roost at sunset as chickens do, and they actually *wouldn't* go into their box with the mother hen, and so I tried leaving them out; but after one out of the flock of 20 "turned up missing" I fixed a sort of "corral," as they call it out west, and now when they see me coming, just about dark, with the "big stick," they hustle inside and stay until I get round about daylight (not much after 4 A.M. at this season) to let them out.

By the way, I have just received from the publisher a 50-cent book entitled "The Indian Runner Duck Book;" and while I have gone over the book with great interest I for one would like more space given to the real habits of the duck, and not so much in regard to where they came from, growing ducks of peculiar shade of feather (even *white* ducks) and ducks that lay only white eggs instead of eggs that are slightly tinted green or blue. Again, I have looked the book through without finding a sentence in regard to the Runners being non-sitters. Just this morning I decided to try if it would be safe to let our ducklings four or five weeks old go out in the creek with the old duck; but the minute the biggest drake saw the "youngsters" he gave the signal and the whole four old ducks went like a whirlwind for the poor little chaps, and before we could interfere the drake had one of the smallest by the neck and would have finished him in no time had we not been near by. I think I have read something about

old ducks or drakes being kept away from the ducklings; yet the new book has not a word of caution in regard to the matter. There is one thing I particularly commend in regard to this book. It does not advertise or even mention any thing the author has for sale. It is published by C. S. Valentine, Ridgewood, N. J.

Later.—To-day is April 20, and I am once more back at my Medina home, and I want to say a little more in regard to the above duck story. I notice that the poultry-journals, or at least many of them, say that ducklings should not be allowed to go into water before they are several weeks old, or feathered out, or something of that sort. Now, this duck book I have mentioned does not say a word about it; and from what experience I have had in the past few weeks I am inclined to think it is a notion or a whim that "ducks" can not go into the "water" all they please, at any age. I put a hen with a brood of twenty ducklings down by the waterfall I have mentioned, and they were playing in the water and having a big time, not only from daybreak till dark, but long after dark, and by moonlight; and they were put in there, some of them, when less than a week old, and I could not discover any harm it did them. They had their bran mash right at the edge of the water where they could help themselves, so they never got hungry. Now, perhaps it is true that they might fatten up better without the water or so much water; but I do not believe they would make any better or stronger growth. After the big drake I have mentioned showed his hostility toward his own children, I moved the old ducks all away, and the twenty little fellows went out into the creek, and went up stream and down, but always came back in perfect safety. The first day I let them out they took their bearings much as bees do. They went away a few feet from their feeding-place, and came back again. After a little rest they started on a still longer "exploring" expedition; and before night they had ventured several rods away, both up and down, and across on the opposite bank, where they could feed on the green stuff. I do not believe there is any danger of Indian Runner ducks running off—that is, if they have perfect freedom to go and come without being frightened or annoyed by any of their natural enemies.

Now, there is still another thing that this duck book does not touch on. All my baby ducks are sold at 20 cts. apiece as fast as they are hatched, and orders are left ahead for ducks not yet out of the shell. Though all were hatched under hens, I had good luck in hatching said ducks just as I have mentioned, and not a duck died or was lost unless by accident. In fact, I should call them the easiest fowls to raise that I ever had any thing to do with—especially down in sunny Florida.

Now I am at a point where I want light. I sold ducks at different ages, from one day old to five or six weeks old, and every pur-

chaser wanted instruction so as to know at the earliest possible moment *which* were drakes and *which* were ducks. Like the demand for pullets among the common fowls, everybody wanted ducks and not drakes. At what age can the sex be distinguished, and *how* are they to be distinguished? Surely the Indian Runner *book* ought to tell us something about it. My good friend Philip Bolei, whom I have mentioned before, said there are two ways of sorting out the drakes. First, the drakes have a tail that curves over, like the tail of a puppy-dog, for instance, while the tail of the duck sticks out straight. Secondly, the drakes, even at an early age, have a shrill voice, something like a hiss, compared with the quack of the ducks. This is very plainly perceptible with grown-up ducks; but I have not had a chance yet to decide at what age the voice changes. One more thing: Both of my mature ducks have blue bills while the two drakes have yellow bills. This is probably accidental. As there is just now a big craze in regard to Indian Runner ducks, I am sure there are many of our readers who can give me pointers. I know they are great layers, because I have one that has laid over one hundred eggs without missing a day; and, better still, almost every one of the 100 eggs that I put under a hen proved to be fertile. I think I have seen the statement in some of the poultry-journals that in many places ducklings, properly fattened, bring one dollar in the market for roasts, when only six weeks of age. I do know that they are of pretty good size when six weeks old; but I do not know how much they would be worth for roasting. Now, at ten cents apiece for eggs (and that is what I received for all I sold), and twenty cents each for ducks a day old, there is certainly money in the Indian Runner ducks. When it comes to supplying the market with eggs or ducks for food I do not yet know what the price will be nor what the profits will be. So far as the quality of the eggs is concerned, I could not tell a scrambled duck egg from that of a hen's egg. As to the quality of the meat, I have never yet had the courage to kill one of my Indian Runner ducks, so I can not answer at present.

There may be something in the whole realm of animated nature that is handsomer and prettier than a day-old duck; but if so, I have not yet found it—no, not even a "girl baby,"* and then their cute comical ways with their red shoes and grotesque yellow bills! After one brood was about a week old they and the mother hen were near some garden peas that were just peeping out of the ground. One of the ducklings wandered over to a row of peas and sampled a tender shoot. Another followed, and soon all of the thirteen were at work at them. I drove them back, hoping that they would forget the peas. Not much! I

* I am sure my feminine friends will excuse the above pleasantries.

Continued on page 28 advertising.